

THE IRON AGE

JAN 19 1918

New York, January 17, 1918



Works of the Taft-Peirce Manufacturing Company, Woonsocket, Rhode Island



Taft-Peirce Standard Products

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Special Machinery The designing and building of special machinery.

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NATION WIDE STEEL-SERVICE

CHICAGO NEW YORK ST. LOUIS DETROIT



ST. LOUIS PLANT

IRON AND STEEL
REQUIREMENTS
FROM FOUR LARGE
STEEL-SERVICE PLANTS

JOSEPH T. RYERSON & SON
IRON STEEL MACHINERY

VOL. 101: No. 3

-BY W. E. FREELAND-

is a definite tendency in this direction. Staff meetings of one kind or another are a daily occurrence, and every staff official finds a portion of his time taken up by conferences and consultations with other officials. An intensive effort is made to keep the time devoted to conferences down to a minimum and to eliminate the necessity for attendance at

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committee meetings and conferences of all officials who have no direct interest in the subject to be discussed, thus conserving their time for constructive work in other directions. Each official is furnished with a loose-leaf book which contains a mass of information about company matters. Specimen pages are here reproduced. From the sheet shown on page 191 the regularly open hours of executives can be quickly ascertained and in each book is a sheet, shown among the specimen pages, on which is scheduled the appointments of the individual to whom the book belongs.

Committees and Conferences

The four important committees which find a place on the general chart are the production, employment, purchase and product committees. The vice-president in charge of engineering sales serves as chairman of the product committee, and its other members are the sales manager, manufacturing engineer and product engineer. It determines what shall be made and studies the general possibilities of a new product, both as to its manufacture and to its reaction upon sales and company policies. It gives special attention to the standardization of the line and the discontinuance of obsolete products. This committee has a permanent secretary who also handles claims from customers, thereby keeping informed of what is happening to the product in the hands of the consumers.

The other three committees are attached to the production organization. The task of the production committee is to co-ordinate the sales effort with the factory effort to the end that the sales department may have the goods it wants when it wants them on the basis of a manufacturing program that will be as economical as possible. The production committee considers the size of production orders, the maintenance and size of the working force, the problem of holding the inventory at a minimum at all points, and the co-ordination of the work of the different departments where they interact. The production superintendent is chairman, the other members including the sales manager, the departmental production superintendents, the head of the order division, the statistical engineer, the purchasing agent, and the departmental superintendents ex-officio.

The purchase committee has as its chairman the statistical engineer and its members are the planning supervisors of each department, including stores and purchasing, and the laboratory head. It studies the future needs of the company, suggests quantities to be bought, and also suggests materials to be substituted when necessary or advisable.

The purchase of most of the materials is originated almost automatically by the balance of stores department on the basis of past records. There are times, however, when an approaching large contract or some other change, either in the business or in the market, demands that buying be tempered by the exercise of good judgment and intimate knowledge of shop needs. This is particularly true in the purchase of supplies. It is upon such exceptional points rather than the routine purchases that this purchase committee is most useful. Matters to be considered by this committee may originate within the committee or come from the purchasing agent, or, in special cases where a trained prognosticator is needed, from the statistical engineer to whom a study of the shop requirements has been assigned. Through the work of this committee the general manager and the purchasing agent are furnished valuable information to guide them in the placing of large contracts for materials and the

stores department is kept informed of contemplated purchases of bulky materials for which special accommodations must be provided.

The employment committee includes the head of the personnel division, the departmental superintendents and the production superintendent who serves as chairman. It studies the general labor situation, the labor needs of the departments and the rates of pay. Its work is centered on current problems and does not usually include the broad problems of human relations.

The Industrial Engineer

The industrial engineer has charge of all management engineering and the development, installation and control of all matters with regard to organization and system. He also acts as financial adviser to the general manager and the head of the cost division comes under him. This unusual arrangement is not so illogical as it at first appears, as the cost system is a piece of industrial engineering and the cost division intimately interlocks with everything to do with system.

Formerly each production department had its own industrial engineer, but this work is now entirely centralized in the industrial engineering department. The department is functionalized. Certain of the functional duties are allotted to five chief assistants who are aided by a group of subordinate industrial engineers. The planning function is divided among three men: The first has charge of all industrial engineering matters except such as are definitely assigned to the two other planning engineers and in particular has charge of the development of standard practices and standard procedures; the second is charged with the planning of cost development and acts as the company's special agent in connection with government contracts. He represents the department in all relations in connection with financial and accounting matters as far as production is concerned and is in charge of all inventories taken in connection with government contracts. The third has charge of all planning of industrial engineering in connection with the offices except where this involves also factory system. In the latter case the first and third planning engineers co-operate.

The engineer in charge of the third planning function also has charge of the preparation function for the entire department. In this function he is responsible for the preparation of physical equipment, the control of printed forms, the issuance and subsequent control of standard practices and procedures, the issuance and subsequent control of such industrial engineering equipment as speed and feed slide rules, etc.

Staff meetings are held each morning of the functional men and the head of the cost division and the scheduling is done by the entire group at these meetings. The detailed work of scheduling is handled by the chief clerk of the department or by special assignment. Some of the chief assistants of the functional men also sit in at these daily meetings and all matters of interest and policy having to do with industrial engineering are taken up and discussed with the view of assuring consistency of action throughout both the industrial engineering staff and the organization of the factory as a whole.

The man in charge of the production function has charge of all the installation work throughout the plant. The preparation man puts the project or material into form and transmits it to the interested department heads for their approval, a time limit for this approval being set. The installation of a system is put in operation through the department

heads, the actual work of installation being done by the departmental supervisors, except matters of major importance, which are handled by the department superintendent. The job of the production man of the industrial engineering staff is to sell the plan to the department heads and to give assistance in the installation. By obtaining the approval of the department head before installation and by asking the production staff to do the actual installing, a measure of interest is gained which has much to do with the continued success of the system. The installation of systems in the offices is in charge of the man designated as the third man of the planning function, the man regularly in charge of the production function assisting when factory system is also involved.

The fifth functional man is in charge of the general inspection of system throughout the factory to insure that standard practices and procedure

The Product Engineer

The basic business of the Winchester company is the production of sporting rifles and shotguns and ammunition for these arms. To maintain a leading position in such a specialized field, constant development of the sporting guns is essential. This development is in charge of a product engineer. He has his own designing staff and a special shop for the development of new guns and the improvement of older models. For convenience, the library is also placed under his charge and he acts as custodian of patent papers.

The Manufacturing Engineer

After a product has been developed by the product engineer, the task of the manufacturing engineer is to take the model or sample and put it on a manufacturing basis. The staff of the manufacturing engineer includes the process and equip-

INTERDEPARTMENTAL SCHEDULE																				
ALL EMPLOYEES ARE REQUESTED TO CO-OPERATE BY MAKING APPOINTMENTS IN ADVANCE																				
TITLE	Symbol	7:00 7:30	7:30 8:00	8:00 8:30	8:30 9:00	9:00 9:30	9:30 10:00	10:00 10:30	10:30 11:00	11:00 11:30	11:30 11:45	1:15 2:00	2:00 2:30	2:30 3:00	3:00 3:30	3:30 4:00	4:00 4:30	4:30 5:00	5:00 5:30	5:30 6:00
President	EXX				M&D	AWH DHY	HB M&D	EVX	RES	SXW	SXW	M&D	SXW	SXW	SXW	SXW	SA	SA	M&D	
Vice Pres. & Gen'l Mgr.	EVX			M&D HB	CAL FGD	EBP M&D	EVER M&D	EXX	EWX M&D	EVEI M&D	EVER M&D	RES	EVER LOP	SXW	SXW	SXW	SA	SA	M&D	
Manuf'g. Engineer	EVEM			EVER	RES	CA	CA	CA	CA	EKXR	EXX	M&D	CA	CA	RES	RES	SA	SA	EVER	
Product Engineer	EVEP			M&D	DW	DW	DW	DW	DW	SA	M&D	RES	EVX HB	CA	COM	COM	SA	SA	M&D	
Production Engineer	EVER			EVEI EVER	EKX	EGX	EVX	ETX	ENX	SA	M&D	M&D	SA	RES	RES	RES	SA	CA	EVEI EVER	
Industrial Engineer	EVEI			EVER	CA	CA	CA	CA	M&D	EVX	RES	DW	DW	DW	DW	SA	SA	M&D	EVER EVER	
Laboratory Head	EVL			M&D	M&D	CA	CA	SA	SA	M&D	M&D	M&D	FW	FW	DW	DW	SA	SA	M&D	
Gun Dept. Supt.	EGX			M&D	M&D	EVER	SA	EGFV	EGFV	SA	SA	EGXF	DW	DW	DW	DW	DW	DW	M&D	
Ctdge Dept. Supt.	EKX			M&D	EVER	M&D	M&D	CKXR	EKXR	SA	SA	M&D	SA	SA	DW	DW	SKW	PW	M&D	
Ctdge Dept. Prod. Supt.	EKXR				CA	M&D	PW	EKX	EKX	EVER	M&D	M&D	SA	SA	PW	PW	SA	SA	M&D	M&D
Tool Dept. Supt.	ETX			M&D ETFX	ETXR	M&D	SA	EVER	SA	SA	SA	M&D	SA	SA	FW	FW	SA	M&D	M&D	
Tool Dept. Prod. Supt.	ETXR			M&D	ETX	FW	FW	FW	FW	SA	SA	M&D ETFX	ETFX	SA	FW	FW	M&D	SA	SA	M&D
Maint. Dpt. Supt.	ENX			M&D	CA	CA	DW	DW	RES	EVER	SA	SA	M&D	CA	CA	DW	DW	SA	SA	M&D
Power Dpt. Supt.	ERX				CA	CA	M&D	M&D	DW	DW	SA	SA	SA	CA	DW	DW	DW	DW	M&D	
Stores Dpt. Supt.	ESX			M&D	CA	DW	DW	SA	SA	SA	SA	M&D	HIS	CA	DW	DW	SA	SA	M&D	
KEY TO SPECIAL SYMBOLS AND ABBREVIATIONS																				
Symbol											Meaning									
CA											Field Work									
COM											Mail and Desk Work									
DW											Production Work									
EPB											Reserved--Subject to Committee Calls									
EGFV--EKFX--ENFV--ERFV--ETFX--											Special Appointments									
EGXF--EKXF--ENXF--ETXF--											Special Work-Gun-Ctge., Tool Depts. and Executive									
EGXV--EKXV--ENXV--ETXV--																				
BYF20B 400 10-17																				
THE ABOVE SCHEDULE DOES NOT APPLY TO SATURDAYS																				

One of the loose leaves of the book in the possession of each official contains the schedule of assigned and unassigned periods of the executives

are carried out, and that the work done by the installation force is made permanent. He also makes periodical inspection of the systems in use in shops and offices to determine their correctness and makes suggestions when further work of the installation force appears to be necessary. He is also charged with the study of systems with the purpose of seeking opportunities to simplify or eliminate systems in use and to recommend economies in organization and management methods.

The department heads are urged to call into conference any member of the industrial engineering staff whose advice they may desire or to whom they may wish to present any problem for consideration of the industrial engineering staff. Prompt action is taken by the staff upon all such matters presented. As some of the present industrial engineering staff were originally assigned as industrial engineers to specific departments and have a specialized knowledge of the methods and processes of such departments, a bond has been established which produces a close co-ordination of the work of the departments and the industrial engineers.

ment engineers of the cartridge, gun, tool and maintenance departments, the ballistic engineer, the structural engineer, the time study engineer and the laboratory engineer.

The cartridge, gun and tool departments have each separate shops, known as process shops. The manufacturing engineer has first call on these shops and a considerable portion of their work is directly for his staff. They are also used as a school for adjusters and other specialized workmen and on occasion to help out the production shops when any portion of the latter are temporarily overburdened. The cartridge process and equipment engineer designs tools, fixtures and gages to meet the specifications of the product engineer and this work is first done by the cartridge process shop where such equipment is built and perfected before the tool department takes up the task of turning out such equipment in quantities necessary to supply the productive shops. The same procedure is followed by the gun process and equipment engineer.

The tool shop is conducted on a vastly different scale from that familiar to most manufacturers. It

is really a tool factory of about 2500 hands, engaged in the manufacture of tools on a factory scale for the stores department which issues the tools to the productive departments. About 100,000 cartridge tools alone are produced each month. The task of the tool process and equipment engineer is largely to devise improvements in the process of making tools. The maintenance process and equipment is concerned with the betterment of the manufacture and repair processes of the electrical, instrument, sheet metal, pattern, carpenter, belt and other shops of the maintenance departments.

The ballistic engineer is an all-important adjunct of a gun and cartridge plant. Webster says that ballistics is the science of the motion of projectiles, and the work of the ballistic engineer and the ballistic division is to study the construction of guns and ammunition and suggest means to make the projectiles travel with the highest possible velocity and the flattest possible trajectory. A very considerable part of the work of the ballistic engineer is to maintain uniformity of product. Unceasing watch, particularly over cartridge manufacture, is kept in order to maintain the ballistic properties of the cartridges and to correct the operations when changes are required owing to minor differences in the raw materials.

The structural engineer supervises those activities which in a smaller plant would be cared for usually by a plant engineer but in this large plant the work is subdivided and he has under him plant, construction, civil, electrical and power engineers and a considerable staff of subordinates.

Time study has been pursued to great advantage in this plant under a time study engineer. Some idea of the scope of this work will be given later in this article. A laboratory engineer completes the staff of the manufacturing engineer.

Under the laboratory engineer is a group of physical, chemical and metallurgical laboratories which handle a volume and diversity of work that is probably not exceeded by any industrial laboratory in the country. Specifications for all materials are made by the laboratories and approved by the manufacturing engineer before the purchasing department takes up the active work of securing raw materials and supplies. All such materials and supplies are checked against the specifications by the laboratories before final acceptance. Research work of all kinds is going on continuously, and for this purpose an elaborate equipment has been installed.

The ballistic division is really another laboratory, filled with highly developed and very special apparatus. Problems like finding the interval of time between the movement of the trigger of a gun and the exit of the projectile from its muzzle

or the time that it takes a bullet to travel from the muzzle of a gun to the target are matters of daily routine.

The drafting division differs in no essential from the usual drafting room, except that it has acquired the habit of working on fixed schedules and making deliveries unusually close to the promised time. Standardization of drawings and the use of printed standard drawings for many kinds of tools, gages, etc., on which only the dimensions need be entered have been developed to a greater extent than is ordinarily done.

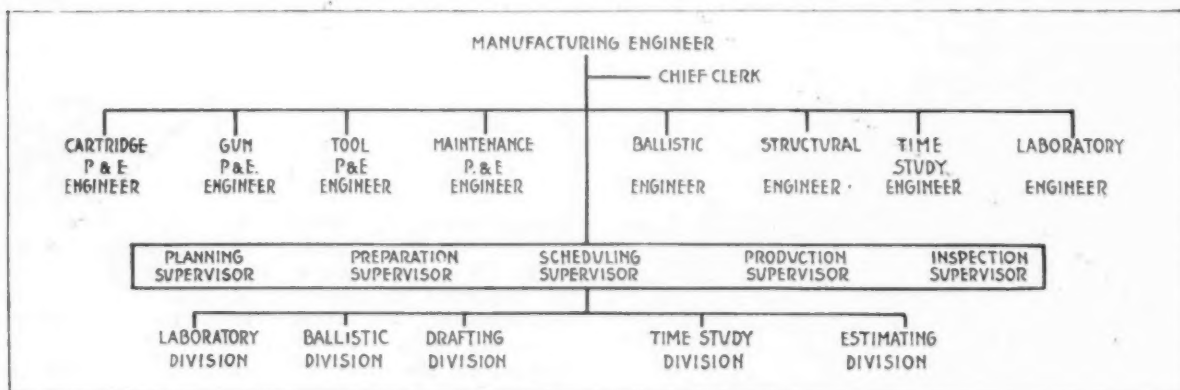
A chart of the manufacturing engineer's organization is here shown.

Speed in Gun Development

If any vindication were needed for the new Winchester organization it would be found in the history of the development of the new light Browning machine gun in the latter part of 1917. When contrasted with the 13½ months which were required to develop the British Enfield rifle, and which was materially shorter than the time ordinarily required for developing a new gun, the construction on a manufacturing basis of the Browning gun in 3 months and 5 days is an unparalleled achievement in arms manufacture. It is to be borne in mind that this was done with practically the same personnel and equipment as had been engaged on the development of the British Enfield rifle, the only material difference lying in organization and management methods and in the new spirit which these methods had produced throughout the plant.

There is no one department that can be picked for special excellence in making this record, as the entire manufacturing skill, ability and resources of the company were released in one grand attack on the problem. Some rarely perfect model drawings by the product engineer and his staff and some remarkable planning and scheduling of work by the manufacturing engineer and his staff furnished the smooth and stable foundation for the race against time of the productive groups.

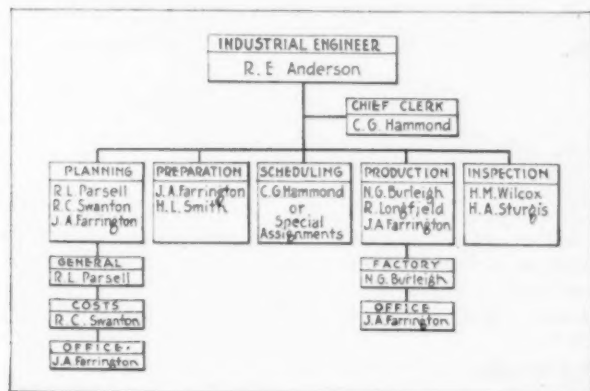
The order to begin the manufacture of the Browning gun was released Sept. 10. The first step was to organize for this special problem. The basic philosophy of functional management was clearly adhered to, and full responsibility for the carrying out of the first three functions, namely planning, preparation and scheduling, was centered in the manufacturing engineer, who was called upon to provide the production organization with complete manufacturing equipment in a condition ready to produce on a manufacturing basis. An analysis was made of all the different duties which would have to be performed so far as they could be antici-



The staff of the manufacturing engineer includes process and equipment engineers of the different main departments

pated, and assignment of these duties to all available individuals was definitely made.

No correct blueprint could be provided and no perfect model was in existence. A single model gun, and that needing some changes, was in the possession of the Colt company at Hartford, Conn., and could not be then secured. Finally on the following Saturday this model gun was borrowed and re-



The Industrial Engineer Has Charge of the Development, Installation and Control of General Organization and System Matters

lays of engineers and draftsmen, working on a precise schedule, labored continuously during this period, and drawings and preliminary operation lists were rushed out at top speed.

* The gain made in the next week was what enabled the organization to beat even its own stiff schedule. Simultaneously the laboratory began on specifications of materials; the purchasing department undertook a stiff buying schedule; the product engineer's staff commenced work on the model drawings; the manufacturing engineer's staff developed the final operation lists; the drafting room started the design of tools, fixtures and gages; the tool room began the manufacture of the equipment, and the maintenance department went to work on the rearrangement of machinery. It was no small undertaking. That drawings had to be made for 1200 gages and 600 fixtures will indicate something of the size of the task.

Ingenious methods were resorted to, without hesitation, to shorten the time or to overcome difficulties due to lack of available working data. Thus, lacking a model gun, models were made of wood and these served as guides for the making of new templates.

Planning and scheduling for the manufacturing operations was cleverly done. As a first step a chart was made by the manufacturing engineer showing the data when production of each part must be started to have all parts ready for assembly at one time; then the various jobs were juggled about to provide a uniform cross-section of work (uniform amount of work for each day); and then an evaluation was made of each job in man-hours by trades so that an estimate could be made of the working force available and the amount of work which must be done in outside shops determined. It was a game of checkers played with two thousand men.

With such a carefully planned and balanced schedule worked out on every piece, and an efficient follow-up, the manufactured gun, as it was called, moved along steadily, with others following along directly behind. The progress of the gun was almost uniformly ahead of the schedule, and it reached a firing test seven days ahead of the schedule first laid out.

It was planned to complete the first gun on Dec. 22. That first gun was completed and given a

firing test on Dec. 15. This record is for the gun made on a manufacturing basis; probably the first time that actual manufacture of a gun on a big scale had been successfully attempted without waiting for the building of a model gun. As a matter of fact, the race between the model shop and the productive shop was "neck and neck," the regular or "manufacturing" gun reaching completion only four days later than the model gun. Thus instead of waiting for the model gun to be perfected before going ahead seriously with the manufactured gun, the developments as they appeared in the working out of the model gun were embodied in the manufactured gun. Although this occasioned a number of alterations in gages and other equipment, necessitating in one case the calling back and altering of five hundred gages, the time gained fully justified the risk taken in this respect. As a matter of fact, so perfect were the model drawings and so accurate the adherence to them in manufacture that the first gun went together and operated satisfactorily without any fitting, a record-breaking performance, which is due also, in no small part, to the design of the gun as produced by Mr. Browning.

The gun described was not a special gun, it was simply the head of a procession of guns that will be flowing into the shipping department in some volume by the time this story appears in print.

Increasing Movement of Manganese Ore

WASHINGTON, Jan. 15.—The movement of manganese ore from the mines in the State of Minas Geraes, Brazil, to tidewater over the Central Railroad of Brazil during the past four years is the subject of a brief report to the Department of Commerce by Consul General Gottschalk, of Rio de Janeiro. The figures embraced in this report show an increase in production of more than 100 per cent since 1914. The manganese field served by this government-owned railway stretches nearly 300 miles along a single track line. This has been for a long time the chief manganese-producing region of the Republic, and it is only recently that discoveries of the mineral at Bahia have tempted American capital toward that State where mining development is still in its infancy. The Central Railroad, therefore, remains the chief dependence of the North American manganese market for the transportation of its ores from the mines to tidewater.

According to the figures in this report the total amount of manganese ore transported from the mines to tidewater in 1914 was 245,185 metric tons of 2,204.6 lb., production ranging from 12,450 to 26,785 tons per month. In 1915 the total shipments aggregated 309,880 tons, the monthly product ranging from 19,060 to 36,025 tons. In 1916 there was a very substantial increase, the total shipments aggregating 432,425 and the monthly production ranging from 29,400 to 40,639 tons. The figures for 1917 are incomplete, but for the ten months ending October, the total was 457,654 tons or at the rate of 549,180 tons for the calendar year. The monthly production in 1917 ranged from 37,505 to 60,188 tons.

The American Uniform Boiler-Law Society, organized for the legal adoption, chiefly by state legislatures, of the A. S. M. E. boiler code, is to make a special effort this year to secure legislation in the states of Georgia, Kentucky, Louisiana, Maryland, Massachusetts, Mississippi, Rhode Island, South Carolina and Virginia, where the legislatures convene this year. Up to date the code has been adopted by most of the important industrial states, including New York, Pennsylvania, New Jersey, Ohio, Indiana, Michigan, Wisconsin, Minnesota and California. It has also been adopted by the cities of Chicago, St. Louis, Kansas City and St. Louis, independently of the State legislation.

Plan to Recast War Excess Profits Tax

Important Amendments Proposed by Senator Smoot—Mining Engineer Makes Suggestions—Some Effects of a Recent Supreme Court Decision

WASHINGTON, Jan. 15.—The attempt of the Internal Revenue Bureau to straighten out the tangles in the excess profits tax law by arbitrary regulation in lieu of legislative amendment has broken down and no less an authority than Senator Simmons, chairman of the Senate Finance Committee, is quoted as saying that later in the session Congress will probably find it necessary to frame a series of amendments to meet difficulties that have arisen in the efforts of the Internal Revenue Bureau to construe the law. This announcement has been received with satisfaction in many quarters and an energetic movement is now on foot to secure the complete recasting of the excess profits provisions of the war revenue act of Oct. 3, 1917, along simple lines, so that the statute may not only be comprehensible to the average business man but also fair and just to all classes of corporations and individuals.

It now seems probable that if Congress decides upon the comprehensive amendment of the excess profits tax law the measure for that purpose will take the form of an amendment to House Joint Resolution 195, already reported by the Ways and Means Committee and designed to subject to the excess profits tax the compensation of Senators and Representatives. In the expectation that this course will be pursued, Senator Smoot, of Utah, one of the leading members of the Finance Committee, has already introduced an amendment to the joint resolution providing a complete substitute for the present excess profits tax law. It also simplifies the income tax law, although it does not change the rates thereof except as applied to corporations. The income tax on corporations which, under the two existing laws, aggregates 6 per cent, in Mr. Smoot's amendment is placed at 8 per cent, the increase being designed to offset the repeal of the tax imposed by the war revenue act upon the incomes of all professions and occupations in excess of \$6,000 per annum. For the purpose of facilitating the preparation of income tax returns Senator Smoot's amendment merges the original income tax law with that embodied in the war revenue act of Oct. 3, 1917, combining the rates in such a manner that a single calculation only will be necessary to arrive at the tax to be paid by any individual instead of working out the tax under both laws and adding the totals as is now necessary.

Method of Ascertaining Profits

The most important change made in the excess profits tax law by the Smoot amendment relates to the method of ascertaining so-called war profits. It is provided that the pre-war period shall be the five calendar years, 1909, 1910, 1911, 1912 and 1913. The two years in which the net income of the trade or business was respectively the greatest and the least are excluded. The five-year period is employed on the ground that it will result in a much fairer normal income of all classes of business than the three years, 1911, 1912 and 1913, provided in existing law. Going back to 1909, Senator Smoot believes will eliminate practically all claims of discrimination against sub-normal business which have been made on a sound basis as to the three years immediately preceding the war. The amendment further provides that if a corporation or partnership was not in existence, or if an individual was not engaged in trade or business, during the whole of each of the five calendar years mentioned but was in existence during the whole of four years, the pre-war period shall mean the two years in which the income was respectively the largest and the smallest; and if a corporation or partnership was not in existence during the whole of each of four such calendar years, the term means as many of such years during the

whole of which the corporation or partnership was in existence.

The Smoot amendment eliminates all questions of capital invested, watered stock, and bonded indebtedness which have proven such stumbling blocks in the attempt to construe the existing law except that where changes in capital have taken place they shall be considered in estimating the war profits. New capital is designated as the amount of cash actually paid into the trade or business since Dec. 31, 1913, if employed during the taxable year; the amount of the surplus and undivided profits accumulated since that date, if employed during the taxable year, and the tangible property transferred to the trade or business since the date referred to. Where capital has actually been drawn out deductions are allowed.

Increase in Revenue

War profits are ascertained under the Smoot substitute by deducting the pre-war profits from the net income of the trade or business for the taxable year and pre-war profits are the average annual amount of the net income of the trade or business during the pre-war period plus 8 per cent of the amount of new capital since added or minus 8 per cent of the amount of capital withdrawn. Estimating the war profits of 1917 of all industries at \$3,300,000,000, the revenue to be derived under the Smoot substitute would approximate \$1,351,000,000, an increase over the estimates under the existing law of \$125,000,000. Under the Smoot substitute, corporations, partnerships, or individuals, the net income of whose trade or business for the taxable year is less than \$2,000, are exempt from the war profits tax, as is also the net income of every trade or business "which is derived from personal services and in which capital is not a material income-producing factor."

Senator Smoot's substitute is being studied with great interest by Senators and Representatives, both majority and minority, and will have strong support in both houses. It is admitted to be far simpler than the existing law and while the framers of the war revenue act will be more or less influenced by pride of authorship, there are many sound reasons why the Smoot substitute should be accepted. But whether Congress is prepared to go so far as to completely recast the war excess profits tax or not, there is an insistent demand that legislation shall be enacted clearing up a number of mooted questions, notably that involving the definitions of tangible and intangible property. This particular phase of the problem is of great importance to the iron and steel industry, and to all others dependent upon mining operations. This importance has been fully recognized in the deliberations here during the past week of the American Mining Congress, which has formulated definite recommendations for amendments to protect corporations and individuals owning ore deposits or leases covering same.

What Is Tangible Property?

In a memorandum prepared for the House and Senate by a special committee of the mining congress contentions with respect to proper definitions are set out in detail. In support of the proposition that mining leases should be construed as tangible property, it is pointed out that such leases within a defined mineral field or near to such field have an actual cash market value. A second proposition put forward by the special committee is that individuals engaged in prospecting for minerals should be considered as "engaged in business having no invested capital," or "merely nominal capital," as defined in the law. In support of this con-

tention it is urged that the mining industry depends for its progress and future existence upon the constant discovery of new deposits. The hazards of the prospector are great, the capital employed is very small and if the profits on an occasional find or discovery are to be taxed at practically the maximum 60 per cent rate, the prospector will be discouraged from his efforts and the progress of the industries which depend upon him will be dangerously impeded.

A recent ruling of the Commissioner of Internal Revenue is assailed by the committee of the mining congress. The commissioner has taken the position that proceeds from the sale of treasury stock are taxable income and this ruling, it is asserted, will work great injustice in many cases.

Proposed Amendment

With a view to placing before Congress a concrete recommendation for the amendment of the excess profits tax provision of the act of Oct. 3, 1917, the committee has drafted a modification of section 207, Title II in the form of an addition to be known as "sub-division C," reading as follows:

That in the case of mines, oil and gas wells, the invested capital, at the option of the taxpayer, shall be (1) the average pre-war net income capitalized at 8 per cent, and (2) paid in or earned surplus and undivided profits used or employed in the business since the pre-war period, exclusive of undivided profits earned during the taxable year; provided, that in the case of mines, oil and gas wells, having no pre-war net income, or acquired since the pre-war period, the "invested capital," at the option of the taxpayer, shall be (1) the net income for the year 1917 capitalized at 12 per cent, and (2) paid in or earned surplus and undivided profits used or employed in the business subsequent to the year 1917, exclusive of undivided profits earned during the taxable year.

The Ways and Means and Finance Committees have received a strong protest from the American Bar Association against the further continuance of that provision of the excess profits tax imposing a levy of 8 per cent upon the earnings of professions and occupations. The association denounces this tax as illogical and unfair and urges its prompt repeal.

Supreme Court's Comments

It is more than probable that the action of the Treasury Department in deciding to reconsider its determination not to seek the amendment of the war excess profits tax is due in part, at least, to the sweeping decision of the United States Supreme Court recently handed down in the case of *Towne vs. Eisner* reversing the rulings of the bureau and the inferior courts in their contention that stock dividends are taxable as income. The Supreme Court rarely indulges in language so emphatic as that employed in this case and the decision is rendered all the more significant because of the fact that Mr. Justice Holmes, who prepared it, employs exactly the same illustrations as were used by Paul D. Cravath, attorney for the Bethlehem Steel Co., in an exhaustive argument made by him before the Senate Committee when the war revenue act was pending, in which he urged the repeal of that provision of the original income tax law defining stock dividends as income for purposes of taxation. Mr. Cravath pointed out that a stockholder receiving a stock dividend is no richer nor is the corporation paying it any poorer than before and that the effect of the operation is merely to give the stockholder two pieces of paper instead of one to represent his interest in the capital of the corporation. Mr. Cravath made the further point, which the Supreme Court did not deem it necessary to touch upon, that the issuance of stock representing the actual transfer of surplus to capital account is conservative financing and therefore highly commendable, as such surplus is thereby placed beyond the reach of the directors of the corporation to distribute to the stockholders as extra dividends.

The Commissioner of Internal Revenue is very reluctant to accept the decision of the Supreme Court and in a circular letter to collectors of internal revenue insists that it does not invalidate the provisions of the act of Sept. 8, 1916, and that of Oct. 3, 1917, specifically taxing stock dividends. If persisted in, the commissioner's course may compel the bringing of further test cases,

but there is little difference of opinion among experienced lawyers as to the equities of the matter.

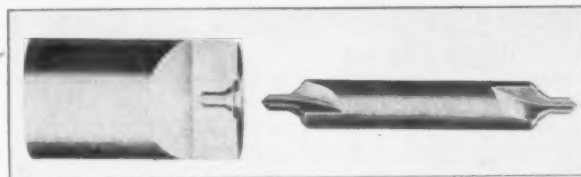
Illegally Collected Taxes

Various estimates of the amounts illegally collected by the Government as income tax on stock dividends have been made here ranging from \$10,000,000 to \$50,000,000. No calculation of stock dividends declared by the corporations will furnish a basis for an accurate estimate, as the amount of such dividends taxable in the hands of each stockholder will depend upon the total amount of his income. No taxes were collected on stock dividends for the year 1916 except in the case of persons having incomes of \$20,000 or more and who, therefore, were subject to the surtax. No collections have yet been made for the year 1917, but the decision of the court will undoubtedly result in the revision of many thousand returns, as the surtax under the act of Oct. 3, 1917, begins at the comparatively low figure of \$5,000. Aggregating the refunds to be made on account of 1916 and the losses from the readjustment of returns for 1917, it would not be surprising should the curtailment of the income tax receipts amount to fully \$50,000,000.

W. L. C.

Combined Center Drill and Countersink

The Apex Drill Co., 2455 McMicken Ave., Cincinnati, has brought out a combined center drill and countersink containing some distinctly new features. It allows work to be faced clear to the center, without employing half centers, or the somewhat delicate operation of partially withdrawing the tailstock center. Either or



The Use of a Combination Center Drill and Countersink Is Claimed to Permit the Facing of Pieces to the Center and Also Eliminates Changing of Tools and Dogs

both ends of the work can be faced before, after or between the turning, or other operations, as the facing has no effect on the real center, which is the inner countersunk portion. This eliminates several handlings of the work and changes of tools and dogs, which the manufacturer claims results in an appreciable saving in time and labor.

A further advantage is claimed in the protection afforded the center from injury, as a result of dropping, or any accidental marring of the work, also from damage when pressing or driving into other parts. The breakages from the usual causes mentioned are said to be reduced to a minimum. The tool is proportioned to allow a depth of center that is theoretically correct before the second countersink operates, which makes it an easy matter to have all centers alike. This is of considerable advantage when shafts, etc., are turned on machines having length stops, also when grinding to shoulders.

A Portable Loading Machine for Box Cars

For loading material of various kinds into box cars the Link-Belt Co., Chicago, has developed a portable machine driven by electric motor or an internal combustion engine. The material handled is placed in a steel hopper which discharges it on an endless flat belt that in turn delivers the material into the car. The machine has a capacity of from 80 to 100 tons per hr. and in recent tests a crew of two men and one machine has loaded a box car in 35 min.

The Steel Products Mfg. Co., successor to the N-B Tool Works, 12-14 South Jefferson Street, Chicago, is now located in its new plant at 4611 West Twelfth Street, which is equipped to manufacture motor truck drive chains on a large scale, as well as all kinds of automatic screw machine and punch press products.

Opposition to Proposed Department

Method of Procuring Munitions Will Probably Not Be Changed—Plan for Reorganization of Ordnance Department Approved by Secretary Baker

WASHINGTON, Jan. 15.—President Wilson, Secretary of War Baker, and Secretary of the Navy Daniels are strongly opposed to the project embodied in Senator Chamberlain's bill creating a new executive department to be known as the Department of Munitions and empowered "to provide for, supervise and control the procurement, manufacture and distribution of munitions of war." Senator Chamberlain is the chairman of the Senate Committee on Military Affairs which for a month has been engaged in the investigation of the War Department with special reference to the progress made in procuring and distributing all forms of war material, and his bill, therefore, may be taken as an expression of his opinion that a new department is necessary for the purpose of expediting the procurement of supplies, thus leaving the Secretary of War and his aides free to concentrate their energies upon the technical military problems involved in the conduct of the war. It will be seen, therefore, that there is a sharp conflict between the views of the President and his Cabinet on the one hand and of the majority leader of the Senate having charge of military affairs on the other.

The President and his official advisers take the position that the machinery of the War and Navy Departments, however inadequate it may have been when the United States first became involved in the war, has been developed to a reasonable state of efficiency and that to disrupt it and undertake the organization of a new department, in which would have to be coordinated many bureaus and divisions of the older departments, would make for delay rather than for expedition. The President also feels—and in this it is understood that both Secretary Baker and Secretary Daniels agree—that the departments charged with the actual military operations should also be responsible for the current supply of war material. Under the most favorable conditions there is more or less conflict between the line and staff in both Army and Navy, and this conflict, it is believed, would be greatly emphasized if the work of supplying the Army and Navy with all forms of material were entrusted to an independent department in no way subordinate to those supervising military operations.

Probable Action on Bill

Notwithstanding the opposition of the President and his Cabinet the fate of the Department of Munitions bill may not be determined for some time to come. The measure will not be called up for consideration by the Military Committee until the vast amount of testimony taken in the pending investigation has been carefully digested. Whether Senator Chamberlain can obtain a majority of his committee for the bill is an open question, but there will be no division on party lines. Senator Chamberlain and Senator Hitchcock, the leading Democratic members, are among the sharpest critics of Secretary Baker and his aides, and during the Secretary's testimony before the committee they have not hesitated to express strong disapproval of the department's methods and especially of the slow progress made in the equipment of the National Army now in cantonments. The President's influence in the Senate, however, is very potent, and it is improbable that after all is said and done Congress will embarrass him by creating a new executive department in direct opposition to his earnestly expressed desires.

Secretary Baker's testimony before the Senate Committee constitutes a strong defense of his administration of the War Department and the efficiency of his principal aides. He has placed special stress upon the stupendous problems that have confronted the Ordnance Bureau and the colossal manufacturing operations it

has undertaken. "Of the total War Department appropriations for 1918," said the Secretary, "\$3,200,000,000 was for the Ordnance Department. The value of the products of all iron and steel industries in the United States in 1914 was \$900,000,000, or less than one-third of the amount to be expended by the Ordnance Department. Of this gigantic sum, the Ordnance Department has already placed contracts amounting to \$1,677,000,000."

Secretary Baker's Summary

In summing up the work of the department since the United States became involved in the war, the Secretary declared that "no army of similar size in the history of the world has ever been raised, equipped, or trained so quickly nor has such provision ever been made for the comfort, health and general well-being of an army." While admitting that there had been shortcomings in obtaining equipment and supplies for the National Army in training, the Secretary insisted that "the initial rush needs are substantially supplied."

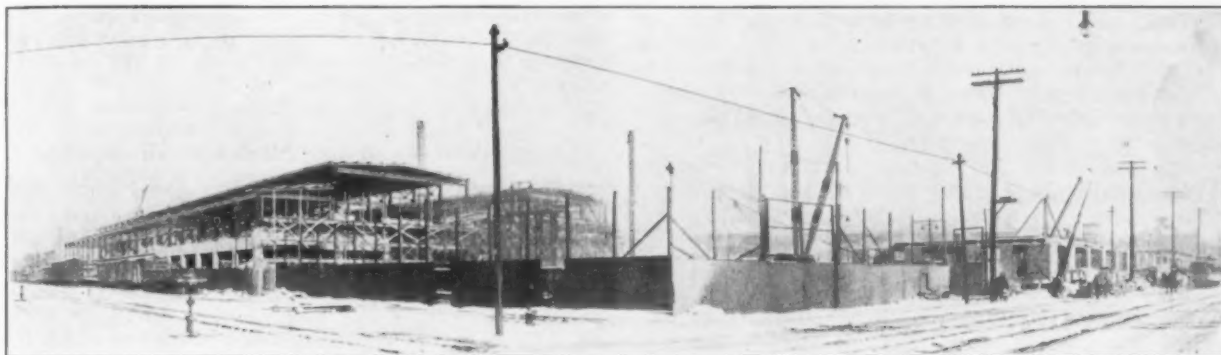
Some of Secretary Baker's statements were sharply challenged by Senators Chamberlain, Hitchcock, Wadsworth and Weeks, who took the position that his general optimism was misleading to the country and urged that he differentiate carefully between statements intended to refer to General Pershing's comparatively small army in France and the much greater number of men now under training in camp. Secretary Baker admitted that some of the cantonments were not fully supplied with equipment, but said the training was proceeding, nevertheless, and predicted positively that every soldier sent to Europe would be provided with the best fighting material in use by any of the combatants.

Plan of Reorganization

The Secretary of War has approved a plan for the reorganization of the Ordnance Department along lines described in General Crozier's recent testimony before the Senate Committee. Heretofore the business of the Ordnance Department has been conducted by five separate and more or less independent organizations under the direction of the Chief of Ordnance. These divisions will now be consolidated. The Chief of Ordnance will be assisted by an extensive administrative and advisory staff. The principal business functions of the department, as distinct from the technical designing and other scientific work with which it is charged, will be carried on by four operating divisions; known as (a) procurement division; (b) production division; (c) inspection division, and (d) supply division.

The procurement division will negotiate all orders and contracts for artillery, small arms, ammunition, and other articles heretofore purchased by the various divisions of the Ordnance Department. The production division will have general charge of the production. It will follow up, supervise, and stimulate the production of all articles contracted for by the procurement division. The inspection division will inspect and accept or reject all munitions of war contracted for by the procurement division. The supply division will receive and distribute all ordnance and ordnance stores, operate all storehouses, and have charge of matters pertaining to transportation.

It is contemplated that this form of organization will make it possible to use to the fullest extent the experience of additional men trained in civil life, who will be called to the service for that purpose. Experienced business executives will be put in charge of the procurement and production divisions, and the work of those divisions will be entrusted to recently commissioned civilians, supplemented by further acquisition of trained experts and men of proved business ability.



WAR WORK IN CENTRAL NORTH

A Few of the Plants Which Government Demand Has Brought Into Being

THE Central Northern States are not ordinarily associated with the making of artillery, except in the case of Illinois, wherein is located the Rock Island Arsenal, and it is interesting to note that in these states, remote from the seaboard, work of the kind is now in full swing on shells and guns in newly established shops, largely as a desire on the part of the Government to utilize the mechanical skill and ingenuity in these cities which have heretofore been concentrated on

the design and production of machine tools and other machinery. The work is done in plants erected for the purpose in Minneapolis and Stillwater, Minn.; Madison, Wis.; Milwaukee, Wis., and Moline, Ill., while work on tractors, Liberty motors, gun mounts and other requisites of this war are being made in other newly constructed shops in various Western cities.

Herewith are shown photographs of the new plants of the Northwestern Ordnance Co., Madison, Wis., and the Wisconsin Gun Co., Milwaukee, Wis. In the Madison plant, which was scheduled to begin the manufacture of field artillery about Jan. 1, there is about 115,000 sq. ft. of

floor space, if the power house is included. The main building is 317 x 325 ft. The Northwestern Ordnance Co. was organized at the request of the Government by several large metal-working interests of Madison, who financed the project. The ground for the plant was broken Aug. 10, 1917, and the contractors, the Worden-Allen Co., Chicago, practically finished their contract by Dec. 5.

The view of the Wisconsin Gun Co.'s plant was made in connection with the flag-raising ceremony which took place on the completion of the plant proper. This plant also was built for the manufacturing of field pieces by several metal-working firms of Milwaukee, also at the request of the Government. The original plans called for a building containing 40,000 sq. ft., and employing about 400 men. The type of gun made is a new one. This plant was built by the Worden-Allen Co., also.

Among the illustrations is one of the two plants built by the Forest City Machine & Forge Co., Cleveland. The other was placed in operation recently to make detonators for shells. At present 15,000 are turned out daily for the Government, and this production is to be increased to 18,000.

A photograph of a new turbine shop of the General Electric Co., at Schenectady, N. Y., is also shown for the suggestion it makes of some of



Another of the Minneapolis Steel & Machinery Co.'s War Plants



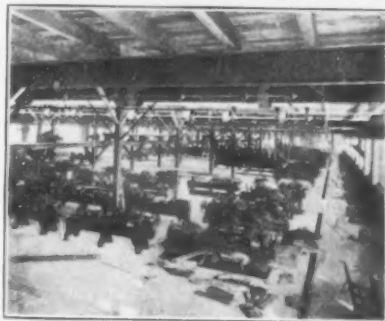
Plant of the Wisconsin Gun Co., Milwaukee, Wherein a New Type of Field Gun will be Made



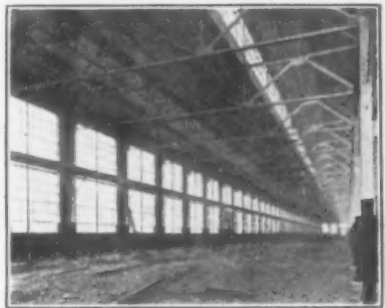
Plant No. 1 of the Forest City Machine & Forge Co., Cleveland. The building shown is 100 x 225 ft.



New Plant of the Northwestern Ordnance Co., Madison, Wis., Where Field Artillery Is Made



Extent of One of the Minneapolis War Plants



New Turbine Shop of the General Electric Co. at Schenectady, N. Y.



Plant of the Lincoln Motor Co., Detroit

the special demands growing out of the present enormous shipbuilding program. The power requirements are naturally of great magnitude and the imposing proportions of the new Schenectady building, which is one built by the Austin Co., Cleveland, is an indication of the big increase which is being made to the country's manufacturing capacity in prime movers.

The Commandeering of Tin by the Navy and the Spot Supply

WASHINGTON, Jan. 15.—To correct misapprehensions growing out of recent attacks upon the Navy Department for having commandeered considerable quantities of tin, Chairman John Hughes, of the Subcommittee on Pig Tin of the American Iron and Steel Institute, has addressed to Bernard M. Baruch, commissioner of raw materials of the War Industries Board, a letter which has been made public by the Subcommittee on Naval Affairs of the House of Representatives now investigating the administration of the Navy Department. The letter was transmitted to the subcommittee by Admiral McGowan, Paymaster General of the Navy, who has made a vigorous defense of the action of the department in the matter.

In his communication to Mr. Baruch, Mr. Hughes describes a meeting held Dec. 6 at the office of C. M. Woolley, of the War Trade Board, which was attended by representatives of the War Industries Board, Food Administration, Ordnance Bureau of the War Department and the Bureau of Supplies and Accounts of the Navy and members of the Subcommittee on Pig Tin of the American Iron and Steel Institute. At this meeting the situation as to the tin supply was fully canvassed and, in view of the shortage of spot tin, it was informally agreed that it would be proper for any consumers who were in a position to do so to release spot Banca tin from available stocks to consumers who needed it at the approximate cost of replacement. Mr. Hughes further said:

The representatives of the Navy reported that considerable tin had been commandeered in warehouses in New York, but that the great bulk was owned by importers or dealers who were not offering it. The Navy also advised that about 800 tons or Banca tin, included in the hoarded stocks, had been taken over by agreement with the importers or owners, at 64c. per lb., which was considered then to be a reasonably low price. Since that time, the price of Banca tin has advanced to 85c. per lb., and its cost at the present time in Batavia for shipment to arrive at New York in March, 1918, is approximately 72c. per lb.

An arrangement was made between the Paymaster General of the Navy and the American Iron and Steel Institute under which the claims of owners of commandeered tin to have same released, would be passed upon by the Subcommittee on Pig Tin, under the regulations and guaranties provided for in Tin Bulletin No. 1 of the American Iron and Steel Institute, under the direction and control of the War Trade Board.

Since that time, claims have been presented to the committee by four owners, and the Subcommittee on Pig Tin has recommended the release of a portion of the quantity claimed to one owner and all of the quantities claimed to the other three. These recommendations have been approved by the Paymaster General of the Navy and the tin has been released. The action of the Navy, in commandeering tin which was hoarded in the possession of importers and dealers and thereby held from the market when an acute shortage prevailed, was commendable, as it resulted in the release of a large quantity of tin for immediate consumption.

The statistical information which will hereafter be reported from month to month by the institute to the War Trade Board will enable the Washington authorities to keep in close touch with the situation, and if stocks of tin are found to be hoarded by importers and dealers, some action, such as that taken by the Navy, will have to be devised to obtain possession of such stocks.

At the time the Navy commandeered the tin in public warehouses in New York, we are reliably informed that there was a considerable tonnage controlled by importers and dealers held in private warehouses which has since been forced into consumption through the fear that it would be taken by the Navy. It will be seen, therefore, that the Navy's action had a broad beneficial effect, although in several cases parcels of tin were commandeered which really belonged to consumers.

Mr. Hughes adds that, so far as the subcommittee has any knowledge, the action of the Navy, wherever a hardship was imposed, has been remedied and if any further claims are presented by owners they will receive prompt attention at the hands of the subcommittee.

Copper Output in 1917 Exceeds All Records

The production of copper in 1917 was slightly less than in 1916, according to preliminary figures and estimates collected by B. S. Butler, of the U. S. Geological Survey, from all plants that make blister copper from domestic ores or that produce refined copper. At an average price of about 27c. per lb. the output for 1917 has a value of \$510,000,000, as against values of \$475,000,000 for 1916 and \$190,000,000 for 1913.

The figures showing the smelter production from domestic ores represent largely the actual output of most of the companies for 11 months and the estimated output for December. The production of blister and Lake copper from domestic ores was 1,890,000,000 lb. in 1917, against 1,928,000,000 lb. in 1916 and 1,224,000,000 lb. in 1913.

The output of refined copper (electrolytic, Lake, casting, and pig) from primary sources, domestic and foreign, for 1917, is estimated at 2,362,000,000 lb., compared with 2,259,000,000 lb. for 1916 and 1,615,000,000 lb. for 1913.

The imports of unmanufactured copper of all forms for the first 10 months of 1917 amounted to 460,780,000 lb., as against 397,594,000 lb. for the first 10 months of 1916. The imports for the year 1916 were 462,335,000 lb.

The exports of pigs, ingots, bars, plates, sheets, rods, wire and like copper products for the first 10 months of 1917 amounted to 953,876,000 lb.; the exports for the first 10 months of 1916 were 655,473,000 lb. Similar exports for the year 1916 were 784,006,000 lb.

At the beginning of 1917 about 128,000,000 lb. of refined copper was in stock in the United States. By adding this quantity to the refinery output of the year it will be seen that the total available supply of refined copper, exclusive of secondary copper, was about 2,490,000,000 lb. By subtracting from this quantity the exports for the first 10 months and the estimated exports for the last two months, and assuming no change in stocks, it will be seen that the supply available for domestic consumption in 1917 was materially less than the 1,430,000,000 lb. available in 1916.

Arizona leads all States in output, that for 1917 having been about 687,800,000 lb. Montana is second with 278,000,000 lb.; Michigan third with 275,000,000 lb., and Utah fourth with 245,000,000 lb.

Increase in the Steel Corporation's Orders

Unfilled orders on the books of the United States Steel Corporation on Dec. 31 were 9,381,718 tons, an increase of 484,612 tons over those reported for November 30. This increase compares with decreases of various proportions in each of the seven preceding months. The November report showed a decline of 112,569 tons. The following table gives the unfilled tonnage at the close of each month since January, 1914:

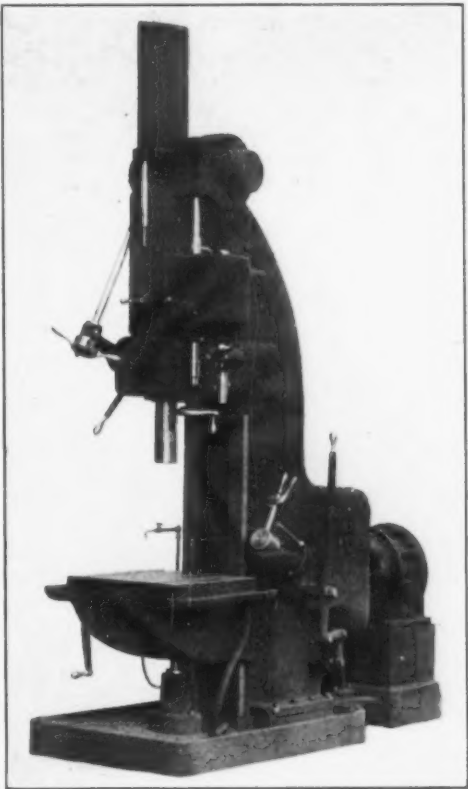
	1917	1916	1915	1914
January	11,474,054	7,922,767	4,248,571	4,613,680
February	11,576,697	8,568,966	4,345,371	5,026,440
March	11,711,644	9,331,001	4,255,749	4,653,825
April	12,183,083	9,829,551	4,162,244	4,277,068
May	11,886,591	9,937,798	4,264,598	3,998,160
June	11,383,287	9,640,458	4,678,196	4,032,857
July	10,844,164	9,593,592	4,928,540	4,158,589
August	10,407,049	9,660,357	4,908,445	4,213,331
September	9,833,477	9,522,584	5,317,618	2,787,667
October	9,069,675	10,015,260	6,165,452	3,461,097
November	8,897,106	11,058,542	7,189,489	3,324,592
December	9,381,718	11,547,286	7,806,220	3,836,643

Employees of the Pangborn Corporation, Hagerstown, Md., were presented at Christmas time with life insurance policies ranging in amounts from \$500 to \$1,000, according to length of service. The Pangborn Corporation bears all expenses of maintaining the insurance.

A Heavy Duty 24-In. Drilling Machine

A vertical drilling machine designed to drive 3-in. high-speed drills in solid steel has been brought out by the Defiance Machine Works, Defiance, Ohio. Some of the distinguishing features of the machine are the use of two cones of gears operated by lever to provide the feed changes while the spindle speeds are secured by two more cones and a roll-in gear. The use of a gravity-oiling system without a large amount of waste is made possible by the total enclosure of the machine.

The machine is equipped with a single driving pulley, thus eliminating the countershaft and the spindle speeds, which are eight in number and range from 51 to 408 r.p.m., are secured by two cones of hardened gears. These run idle except when one of them is engaged by a hardened roll-in gear operated by a lever at the side of the machine. The cones of gears are driven by back gears which are controlled by a friction clutch



A Gear Which Rolls into Mesh with One of Two Cones Provides the Spindle Speeds in a New 24-In. Vertical Drilling Machine instead of the Ordinary Change Gear Arrangement

located on the driving pulley shaft. This speed changing arrangement, it is pointed out, eliminates the customary change gear arrangement now employed for doing this work. Both gears are located in a unit at the back of the housing.

The spindle is a high carbon steel forging 3½ in. in diameter and is driven by helical gears with two keys through the driving sleeve into the spindle. The thrust of the gears and keys which are located near the spindle nose is taken by a large thrust bearing and this arrangement is relied upon to eliminate all torque to the spindle. The thrust of the feed pinion on the rack in the spindle sleeve is taken by roller bearings on a center on the opposite side of the sleeve, thus eliminating friction. The four feed changes which range from 0.046 to 0.007 in. per revolution of the spindle are obtained through two cones of gears operated by a conveniently located lever. The feed is transmitted to the spindle by a large worm gear which runs in an oil bath, and the centers of both the worm and worm gear are fixed. The power feed is 16 in. in length and a stop is obtained by an adjustable stop rod connected to the top of the spindle and also to a clutch on the worm shaft.

A box type table with a working surface of 20 x 22

in. is regularly provided. It is gibbed to the column on which it has a vertical adjustment of 15 in. This is secured by a large telescopic screw operated by a lever from the front of the machine, the screw being located between the spindle and the column to permit boring bars to pass through the table. If desired a compound table which consists of a special box-type bracket to support the intermediate slide and the table can be furnished. Transverse and longitudinal adjustments of 9 and 30 in. respectively are provided, and three longitudinal T-slots are cut in the upper surface. The elevating screw is the same as that used on the plain table, but the use of the compound table reduces the maximum distance between the spindle nose and the table unless a machine with a higher column is ordered.

The tank for the cutting compound is located in the base of the machine and forms a part of the regular equipment. A single valve located near the outlet of the tank controls the flow, the pump being provided with a relief valve. The reservoir for the gravity oiling system is located at the bottom of the housing and the lubricant is pumped from there to the top of the spindle and thus flows back by gravity after passing through all parts of the machine. An all-gearied tapping attachment located behind the main spindle driving gear and operated by a lever and jaw clutch can be supplied as an extra.

Decreased Imports of Iron and Steel Products

The imports of iron and steel for November, 1917, show a heavy decline as compared with the same month of 1916, amounting to but 14,879 gross tons as compared with 42,543 tons. Reduced shipments of ferromanganese, all other pig iron and scrap, together with a large proportionate increase in steel billets without alloys, are features of the statistics. Owing to large imports in the early part of 1917, the total for the 11 months ended November shows a substantial gain over 1916 amounting to 315,280 gross tons as compared with 275,734 tons. The accompanying table shows in detail the imports for November and the eleven months ended November for both years.

	November		Eleven Months	
	1916 Gross Tons	1917 Gross Tons	1916 Gross Tons	1917 Gross Tons
Ferromanganese	6,232	1,512	73,435	42,422
Ferrosilicon	761	406	6,447	8,895
All other pig iron	7,555	1,495	47,291	20,326
Scrap	25,095	4,486	84,615	176,606
Bar iron	459	140	7,424	2,239
Structural iron and steel..	99	793	1,212	5,239
Steel billets without alloys.	242	3,091	9,013	34,122
All other steel billets....	1,094	972	14,576	7,649
Steel rails	846	767	25,777	7,835
Sheets and plates.....	111	122	1,491	1,233
Tin andterne plates.....	38	.....	975	124
Tin scrap .....	.....	886	.....	7,683
Wire rods	11	209	3,478	727
Total.....	42,543	14,879	275,734	315,280
Imports of Manganese				
Manganese, oxide and ore	31,225	44,141	526,525	555,282

Manufacturers in Bucyrus, Ohio, have formed an organization known as the Employers' Association of Bucyrus and will conduct a labor bureau and take up housing and other problems. C. F. Michael, of the Ohio Locomotive Crane Co., is president; R. O. Perrott, of the American Clay Machinery Co., first vice-president; F. W. Hudson, of the Ohio Steel Foundry Co., second vice-president; E. J. Songer, formerly mayor of Bucyrus, secretary, and W. B. Fisher, of the Sommer Motor Co., treasurer.

The corporate name of Trimble, Mudge & Co., dealers in iron and steel scrap of all kinds, rooms 1330-1335, Henry W. Oliver Building, Pittsburgh, has been changed to the H. N. Trimble Steel Co., with officials as follows: H. N. Trimble, president and treasurer; W. H. Barr, vice-president and secretary, and J. H. Gilmore, assistant treasurer.

the special demands growing out of the present enormous shipbuilding program. The power requirements are naturally of great magnitude and the imposing proportions of the new Schenectady building, which is one built by the Austin Co., Cleveland, is an indication of the big increase which is being made to the country's manufacturing capacity in prime movers.

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The representatives of the Navy reported that considerable tin had been commandeered in warehouses in New York, but that the great bulk was owned by importers or dealers who were not offering it. The Navy also advised that about 800 tons of Banca tin, included in the hoarded stocks, had been taken over by agreement with the importers or owners, at 64c. per lb., which was considered then to be a reasonably low price. Since that time, the price of Banca tin has advanced to 85c. per lb., and its cost at the present time in Batavia for shipment to arrive at New York in March, 1918, is approximately 72c. per lb.

An arrangement was made between the Paymaster General of the Navy and the American Iron and Steel Institute under which the claims of owners of commandeered tin to have same released, would be passed upon by the Subcommittee on Pig Tin, under the regulations and guaranties provided for in Tin Bulletin No. 1 of the American Iron and Steel Institute, under the direction and control of the War Trade Board.

Since that time, claims have been presented to the committee by four owners, and the Subcommittee on Pig Tin has recommended the release of a portion of the quantity claimed to one owner and all of the quantities claimed to the other three. These recommendations have been approved by the Paymaster General of the Navy and the tin has been released. The action of the Navy, in commandeering tin which was hoarded in the possession of importers and dealers and thereby held from the market when an acute shortage prevailed, was commendable, as it resulted in the release of a large quantity of tin for immediate consumption.

The statistical information which will hereafter be reported from month to month by the institute to the War Trade Board will enable the Washington authorities to keep in close touch with the situation, and if stocks of tin are found to be hoarded by importers and dealers, some action, such as that taken by the Navy, will have to be devised to obtain possession of such stocks.

At the time the Navy commandeered the tin in public warehouses in New York, we are reliably informed that there was a considerable tonnage controlled by importers and dealers held in private warehouses which has since been forced into consumption through the fear that it would be taken by the Navy. It will be seen, therefore, that the Navy's action had a broad beneficial effect, although in several cases parcels of tin were commandeered which really belonged to consumers.

Mr. Hughes adds that, so far as the subcommittee has any knowledge, the action of the Navy, wherever a hardship was imposed, has been remedied and if any further claims are presented by owners they will receive prompt attention at the hands of the subcommittee.

Copper Output in 1917 Exceeds All Records

The production of copper in 1917 was slightly less than in 1916, according to preliminary figures and estimates collected by B. S. Butler, of the U. S. Geological Survey, from all plants that make blister copper from domestic ores or that produce refined copper. At an average price of about 27c. per lb. the output for 1917 has a value of \$510,000,000, as against values of \$475,000,000 for 1916 and \$190,000,000 for 1913.

The figures showing the smelter production from domestic ores represent largely the actual output of most of the companies for 11 months and the estimated output for December. The production of blister and Lake copper from domestic ores was 1,890,000,000 lb. in 1917, against 1,928,000,000 lb. in 1916 and 1,224,000,000 lb. in 1913.

The output of refined copper (electrolytic, Lake, casting, and pig) from primary sources, domestic and foreign, for 1917, is estimated at 2,362,000,000 lb., compared with 2,259,000,000 lb. for 1916 and 1,615,000,000 lb. for 1913.

The imports of unmanufactured copper of all forms for the first 10 months of 1917 amounted to 460,780,000 lb., as against 397,594,000 lb. for the first 10 months of 1916. The imports for the year 1916 were 462,335,000 lb.

The exports of pigs, ingots, bars, plates, sheets, rods, wire and like copper products for the first 10 months of 1917 amounted to 953,876,000 lb.; the exports for the first 10 months of 1916 were 655,473,000 lb. Similar exports for the year 1916 were 784,006,000 lb.

At the beginning of 1917 about 128,000,000 lb. of refined copper was in stock in the United States. By adding this quantity to the refinery output of the year it will be seen that the total available supply of refined copper, exclusive of secondary copper, was about 2,490,000,000 lb. By subtracting from this quantity the exports for the first 10 months and the estimated exports for the last two months, and assuming no change in stocks, it will be seen that the supply available for domestic consumption in 1917 was materially less than the 1,430,000,000 lb. available in 1916.

Arizona leads all States in output, that for 1917 having been about 687,800,000 lb. Montana is second with 278,000,000 lb.; Michigan third with 275,000,000 lb., and Utah fourth with 245,000,000 lb.

Increase in the Steel Corporation's Orders

Unfilled orders on the books of the United States Steel Corporation on Dec. 31 were 9,381,718 tons, an increase of 484,612 tons over those reported for November 30. This increase compares with decreases of various proportions in each of the seven preceding months. The November report showed a decline of 112,569 tons. The following table gives the unfilled tonnage at the close of each month since January, 1914:

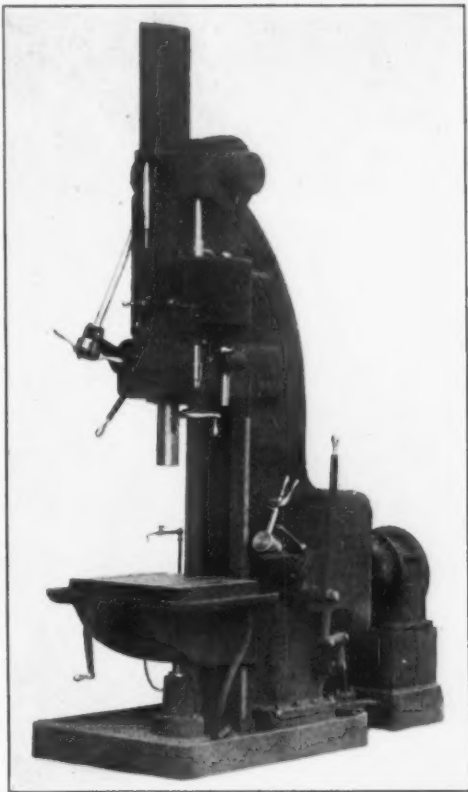
	1917	1916	1915	1914
January	11,474,054	7,922,767	4,248,571	4,613,680
February	11,576,697	8,568,966	4,345,371	5,026,440
March	11,711,644	9,331,001	4,255,749	4,653,825
April	12,183,983	9,829,551	4,162,244	4,277,068
May	11,886,591	9,937,798	4,264,598	3,998,160
June	11,383,287	9,640,458	4,678,196	4,032,857
July	10,844,164	9,593,592	4,928,540	4,158,589
August	10,407,049	9,660,357	4,908,445	4,213,331
September	9,833,477	9,522,584	5,317,618	2,787,667
October	9,009,675	10,015,260	6,165,452	3,461,097
November	8,897,106	11,058,542	7,189,489	3,324,592
December	9,381,718	11,547,286	7,806,220	3,826,643

Employees of the Pangborn Corporation, Hagerstown, Md., were presented at Christmas time with life insurance policies ranging in amounts from \$500 to \$1,000, according to length of service. The Pangborn Corporation bears all expenses of maintaining the insurance.

A Heavy Duty 24-In. Drilling Machine

A vertical drilling machine designed to drive 3-in. high-speed drills in solid steel has been brought out by the Defiance Machine Works, Defiance, Ohio. Some of the distinguishing features of the machine are the use of two cones of gears operated by lever to provide the feed changes while the spindle speeds are secured by two more cones and a roll-in gear. The use of a gravity oiling system without a large amount of waste is made possible by the total enclosure of the machine.

The machine is equipped with a single driving pulley, thus eliminating the countershaft and the spindle speeds, which are eight in number and range from 51 to 408 r.p.m., are secured by two cones of hardened gears. These run idle except when one of them is engaged by a hardened roll-in gear operated by a lever at the side of the machine. The cones of gears are driven by back gears which are controlled by a friction clutch



A Gear Which Rolls into Mesh with One of Two Cones Provides the Spindle Speeds in a New 24-In. Vertical Drilling Machine instead of the Ordinary Change Gear Arrangement

located on the driving pulley shaft. This speed changing arrangement, it is pointed out, eliminates the customary change gear arrangement now employed for doing this work. Both gears are located in a unit at the back of the housing.

The spindle is a high carbon steel forging 3½ in. in diameter and is driven by helical gears with two keys through the driving sleeve into the spindle. The thrust of the gears and keys which are located near the spindle nose is taken by a large thrust bearing and this arrangement is relied upon to eliminate all torque to the spindle. The thrust of the feed pinion on the rack in the spindle sleeve is taken by roller bearings on a center on the opposite side of the sleeve, thus eliminating friction. The four feed changes which range from 0.046 to 0.007 in. per revolution of the spindle are obtained through two cones of gears operated by a conveniently located lever. The feed is transmitted to the spindle by a large worm gear which runs in an oil bath, and the centers of both the worm and worm gear are fixed. The power feed is 16 in. in length and a stop is obtained by an adjustable stop rod connected to the top of the spindle and also to a clutch on the worm shaft.

A box type table with a working surface of 20 x 22

in. is regularly provided. It is gibbed to the column on which it has a vertical adjustment of 15 in. This is secured by a large telescopic screw operated by a lever from the front of the machine, the screw being located between the spindle and the column to permit boring bars to pass through the table. If desired a compound table which consists of a special box-type bracket to support the intermediate slide and the table can be furnished. Transverse and longitudinal adjustments of 9 and 30 in. respectively are provided, and three longitudinal T-slots are cut in the upper surface. The elevating screw is the same as that used on the plain table, but the use of the compound table reduces the maximum distance between the spindle nose and the table unless a machine with a higher column is ordered.

The tank for the cutting compound is located in the base of the machine and forms a part of the regular equipment. A single valve located near the outlet of the tank controls the flow, the pump being provided with a relief valve. The reservoir for the gravity oiling system is located at the bottom of the housing and the lubricant is pumped from there to the top of the spindle and thus flows back by gravity after passing through all parts of the machine. An all-gear tapping attachment located behind the main spindle driving gear and operated by a lever and jaw clutch can be supplied as an extra.

Decreased Imports of Iron and Steel Products

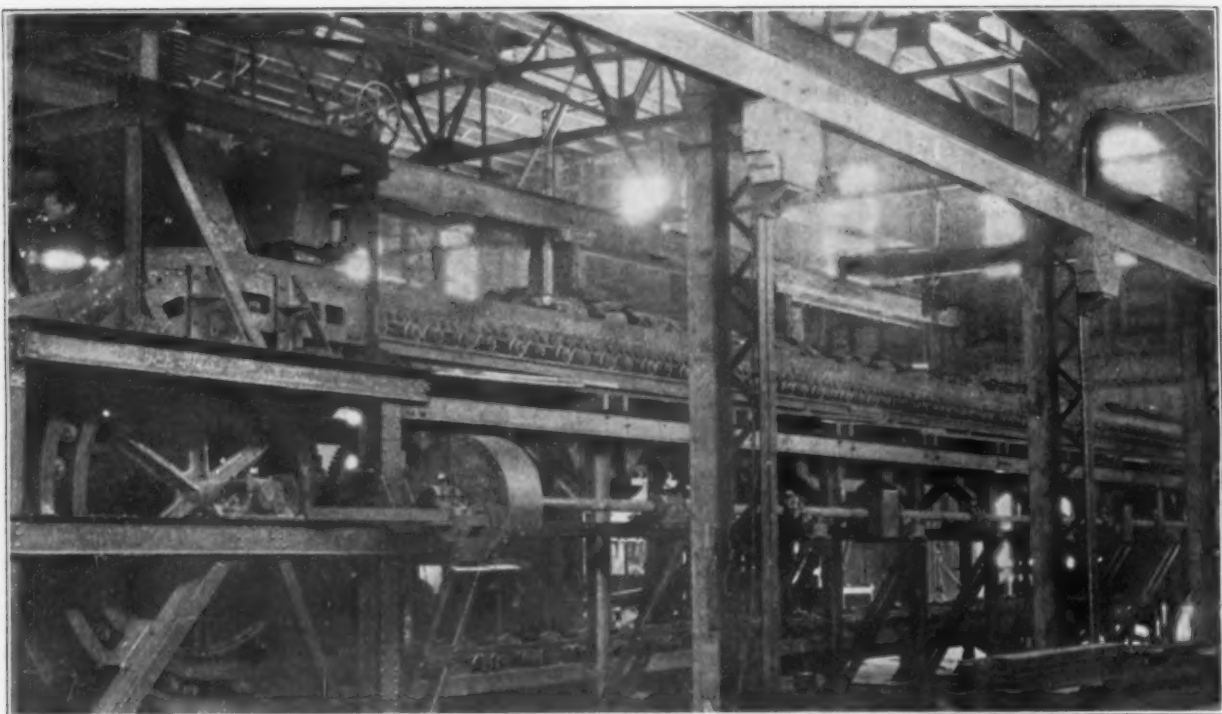
The imports of iron and steel for November, 1917, show a heavy decline as compared with the same month of 1916, amounting to but 14,879 gross tons as compared with 42,543 tons. Reduced shipments of ferromanganese, all other pig iron and scrap, together with a large proportionate increase in steel billets without alloys, are features of the statistics. Owing to large imports in the early part of 1917, the total for the 11 months ended November shows a substantial gain over 1916 amounting to 315,280 gross tons as compared with 275,734 tons. The accompanying table shows in detail the imports for November and the eleven months ended November for both years.

	November		Eleven Months	
	1916 Gross Tons	1917 Gross Tons	1916 Gross Tons	1917 Gross Tons
Ferromanganese	6,232	1,512	73,435	42,422
Ferrosilicon	761	406	6,447	8,895
All other pig iron.....	7,555	1,495	47,291	20,326
Scrap	25,095	4,486	84,615	176,606
Bar iron	459	140	7,424	2,239
Structural iron and steel..	99	793	1,212	5,239
Steel billets without alloys.	242	3,091	9,013	34,122
All other steel billets....	1,094	972	14,576	7,649
Steel rails	846	767	25,777	7,835
Sheets and plates.....	111	122	1,491	1,233
Tin and terne plates.....	38	...	975	124
Tin scrap .....	...	886	...	7,683
Wire rods	11	209	3,478	727
Total.....	42,543	14,879	275,734	315,280

Imports of Manganese			
Manganese, oxide and ore			
of	31,225	44,141	526,525
			555,282

Manufacturers in Bucyrus, Ohio, have formed an organization known as the Employers' Association of Bucyrus and will conduct a labor bureau and take up housing and other problems. C. F. Michael, of the Ohio Locomotive Crane Co., is president; R. O. Perrott, of the American Clay Machinery Co., first vice-president; F. W. Hudson, of the Ohio Steel Foundry Co., second vice-president; E. J. Songer, formerly mayor of Bucyrus, secretary, and W. B. Fisher, of the Sommer Motor Co., treasurer.

The corporate name of Trimble, Mudge & Co., dealers in iron and steel scrap of all kinds, rooms 1330-1335, Henry W. Oliver Building, Pittsburgh, has been changed to the H. N. Trimble Steel Co., with officials as follows: H. N. Trimble, president and treasurer; W. H. Barr, vice-president and secretary, and J. H. Gilmore, assistant treasurer.



Dwight & Lloyd Sintering Machine, Built for the Carnegie Steel Co., Loaded with Pig Iron for Testing Purposes

ENLARGED SINTERING MACHINE

Dwight and Lloyd Installation for Carnegie Steel Co. for Flue Dust

A NEW and improved design of the Dwight and Lloyd sintering machine, shown in the accompanying photographs, was recently completed for the Car-

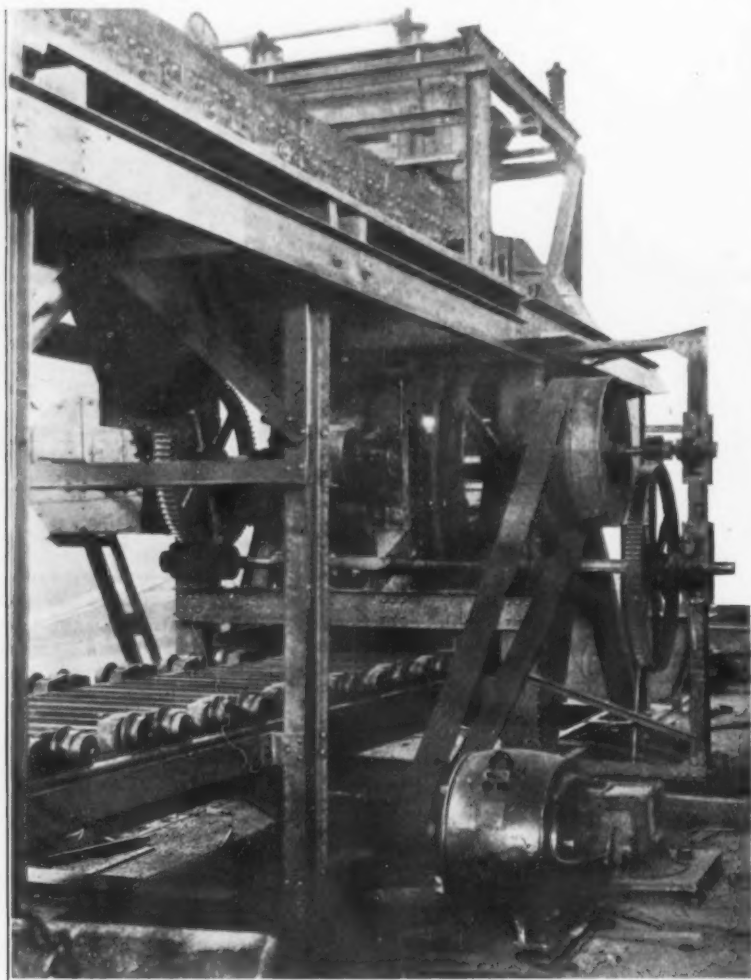
negie Steel Co., at New Castle, Pa. It is to be used for sintering blast furnace flue dust. This new machine has an active grate surface 42 in. wide and 57 ft. 4 in. long and a sintering capacity $2\frac{1}{4}$ times that of the present standard Dwight and Lloyd machine.

This new large sintering machine contains a number of important improvements which are the result of the experience gained by the American Ore Reclamation Co. in the operation of the Dwight and Lloyd sintering machines which have been installed in plants in the last six years.

The standard machine heretofore used has an active grate surface 42 in. wide and 25 ft. 6 in. long and the lower strand of pallets rolls by gravity along an inclined track back to the driving sprocket wheels. The much greater length of the new machine makes the use of a gravity return undesirable and the lower strand of pallets is therefore positively driven along the lower track by sprocket wheels at the discharge end as shown. These discharge end sprocket wheels are driven in synchronism with the driving end sprocket wheels, as shown in the general view. This synchronous drive serves to insure that the empty pallets are returned to the driving sprocket wheels at the same rate of speed as that of the pallets on the upper strand.

On this new large machine, sliding friction between the pallets and the wind box tops is eliminated by carrying the weight of the loaded pallets on wheels running on rails. The pallet wheels are fitted with renewable Shelby steel bushings and have large oil spaces that carry a month's supply of grease. The sprocket wheel teeth drive against tooth surfaces cast in the frame of the pallet and not against the pallet wheels, thus allowing the pallet wheels to properly perform their rolling function around the curved tracks at the drive end.

All of the gears and the sprocket wheel teeth on the new machine are made of steel castings. The gears and the shaft couplings are wholly enclosed in heavy sheet steel housings. The sprocket wheel teeth are removable and are machined in jigs so that they are interchangeable and when worn may be re-



The Drive End of the New Sintering Machine

placed without tearing down the larger members of the drive. The driving pulley is fitted with a cast iron break pin to prevent accidental injury to the driving mechanism.

An important feature of the new machine is the use of seal bars on the pallets to maintain automatically air-tight joints between the pallets and the tops of the wind boxes. These seal bars are made very light and by their own weight bear on the finished surfaces of the wind box tops and also fit against the finished sides of the pallet slots in which the bars are hung.

The first one of the new machines was tested under full load conditions which were obtained by loading the upper strand of pallets with 20 tons of pig iron as shown in the photographs. The horsepower readings taken during the tests show that the various improvements have been effective in reducing the driving load; the fully loaded machine as set up for the test required 12½ hp.

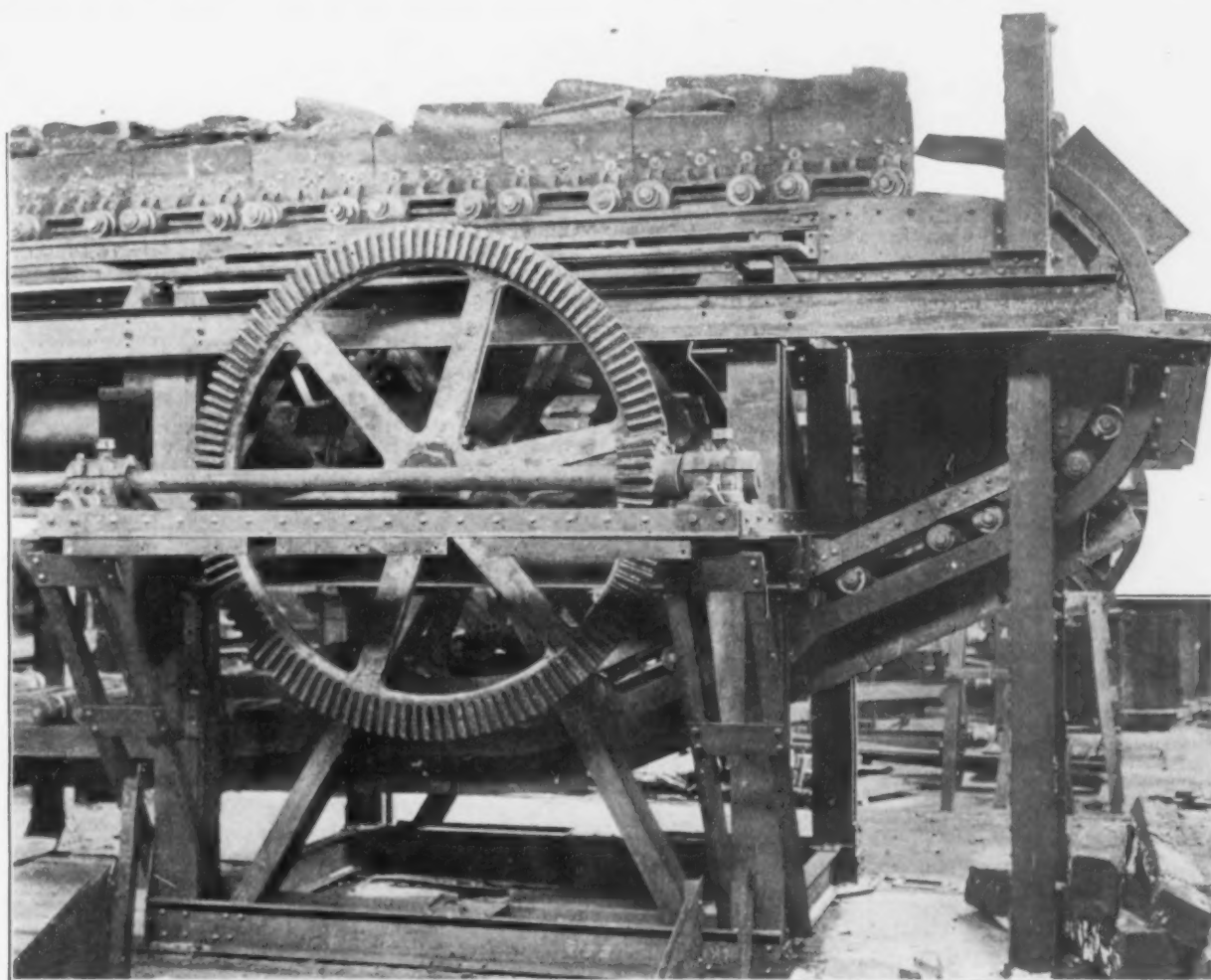
Based on the performance of the smaller machines

Will Place Women in War Industries

The *Official Bulletin* of the Government makes the following announcement:

The problem which concerns the placement of women in positions held by men released for war service as well as the placement of wage earners made idle through industrial changes will be simplified by a new plan now being put into effect by the Labor Department. This plan includes the transfer of the United States Employment Service from the Bureau of Immigration to the Office of the Secretary of Labor and will also centralize the work of the various employment bureaus throughout the country. In addition to \$250,000 placed in the hands of the Secretary of Labor for war emergency employment work by the urgent deficiency bill, a further sum has been made available by President Wilson from his \$100,000,000 appropriation to carry on the service pending further action by Congress.

Significant of the importance of women in industry is the appointment of Miss Hilda Muhlhauser as assistant manager of the newly organized Employment Service of the Department of Labor. For the last 10 years Miss Muhlhauser has



The Discharge End of the Machine, Which Has 2½ Times the Capacity of Existing Machines

now in service, the capacity of the new large machine, when sintering various materials, is as follows:

Flue dust	300 to 350 tons sinter per day of 24 hr.
Pyrites cinder	375 to 450 tons sinter per day of 24 hr.
Magnetic concentrates ..	450 to 550 tons sinter per day of 24 hr.

Duplicates of this large sintering machine have been ordered from the American Ore Reclamation Co. for installation in the following plants: Colorado Fuel & Iron Co., Pueblo, Col., to treat ore concentrates mixed with blast furnace flue dust. E. & G. Brooke Iron Co., Birdsboro, Pa. (To treat magnetic concentrates.) Davison Chemical Co., Curtis Bay, Md. (To treat pyrites cinder.) American Steel & Wire Co., Donora, Pa. (To treat blast furnace flue dust.)

In 1917 the production of Portland cement reached a total of 93,554,000 bbl., nearly 1,500,000 bbl. more than in 1913, the former high production year.

devoted her time and energy to all the phases of the employment problem, making intensive studies as well as practical investigations. She is identified with many organizations, being a member of the Board of the Consumers' League of Ohio, the Woman's Suffrage Association, and the Woman's City Club of Cleveland and New York. She is vice-president of the American Association of Public Employment Bureaus.

By a proclamation of the President it will be necessary to secure Government licenses on or before Jan. 21, 1918, for the manufacture, distribution or importation of ammonia, ammoniacal liquors and ammonium sulphate.

The Berkshire iron mine near Mellen, Wis., owned and operated by Minneapolis, Minn., interests, will become an active producer and shipper of a high grade of hematite ore early during the present year.

CONSERVING FUEL SUPPLY

Much Will Be Accomplished by Voluntary Action of Manufacturers

WASHINGTON, Jan. 15.—With a view to conserving the fuel supply for the use of industries necessary to the conduct of the war, the Government is about to take drastic action against so-called non-essential industries, compelling them to reduce their consumption of coal and other fuel by a substantial amount, generally understood to approximate 20 per cent. This action, which is to be taken by the Fuel Administrator, was foreshadowed several weeks ago when a conference of the war service committees of the Chamber of Commerce of the United States, held in this city, was addressed by Chairman Willard of the War Industries Board, Dr. Garfield, Fuel Administrator, and other officials representing the Council of National Defense. It was then announced that the war service committees would be expected to canvass their respective members and to report to the Fuel Administration plans for reducing the coal consumption of all concerns whose products are not directly contributory to the war or which are not essential to the general welfare of the country. Reports have since been received from a number of the war service committees and, based upon the information contained therein and upon a general survey of the fuel requirements of the country for the coming year, Dr. Garfield has formulated a policy for the treatment of those industries "classed as not absolutely necessary to the conduct of the war." The method is called the "coal budget plan."

According to the official announcement, committees representing the large industries not engaged in war work—more than 100 in all—will be called into conference with the officials of the Fuel Administration. They will be shown the amount of coal available for all purposes, the amount required for war purposes and domestic consumers, and the total curtailment of the use of coal which must be effected to satisfy these demands. They will be asked on patriotic grounds as well as for their own future interests to volunteer in behalf of their industry a reduction of the coal consumption for the year 1918. They will be asked to show the Fuel Administration the best method of accomplishing this curtailment. They will also be asked to advise the Fuel Administration as to how to arrange these restrictions so as to affect only the less essential portions of their own business, if possible.

When an agreement is thus reached as to the quantity of coal to be conserved in each industry the Fuel Administration order will be issued, making this agreement effective as regards the total industry involved. The voluntary annual saving shown by the first dozen industries called into conference promises to be between 15,000,000 and 20,000,000 tons. The total offering, from all non-war industries, will be between 36,000,000 and 50,000,000 tons for the year 1918.

One of the striking instances of curtailment is in the brewing industry. Representatives of the American Brewers' Association and others affiliated with the industry came to Washington last week and after a conference with the Fuel Administration volunteered a reduction of 700,000 tons annually. Other industries whose representatives have been to Washington already are paint and varnish, wall paper, confectionery, artificial ice, boxboard and glassware. The voluntary reduction of one day's running per week on the part of the boxboard manufacturers amounts to 1,000,000 tons a year and will take 30,000 carloads of merchandise freight off the congested railroads. The Fuel Administration asks that other industries affected get in touch with Washington without waiting for formal notice.

These industries, which the Fuel Administrator says are "sometimes miscalled non-essential industries," are an important part of the country's economic system. They employ 10,000,000 workers and from them must come the taxes and bonds which will pay for the war. These industries have never objected to any curtailment of coal or material or men which could be shown to be

necessary to win the war. It was the indefinite threat of annihilation by restrictive orders which during the last two or three months has alarmed the leaders of business and finance.

Many Miles of Railroads Sold for Scrap

High prices paid for old rails, scrap iron and steel, etc., were a contributing factor in the abandonment by railroads of the United States of 942 miles of track in 1917, according to statistics compiled by the *Railway Age*. The operation of this trackage had proved unprofitable. The new mileage built during the year was 962, which is less than in any year since the Civil War, except 1915, when 933 miles were constructed.

Besides the 942 miles of track abandoned, railroads asked State commissions for permission to abandon 396 miles, on which no action has been taken. The *Railway Age* has kept a record for 35 years of new railroad construction and in one year this amounted to more than 6000 miles. In a number of years it has been over 5000 miles and since 1910 it has been as follows: 1910, 4122; 1911, 3066; 1912, 2997; 1913, 3071; 1914, 1532; 1915, 933; 1916, 1098. But never before has it seemed worth while keeping a record of the few miles of logging road or spur tracks which have been taken up. In 1917, however, there were 451 miles of railroad actually taken up or in process of being taken up and sold for junk. In addition, there were 491 miles of road on which operation was abandoned.

In addition to the new main track built, the statistics show, there was also built 567 miles of second track, 36 of third track and 28 of fourth track. A total of 206 miles of line was constructed in Canada.

At the end of the year there were 17,773 miles of railroad with outstanding securities amounting to \$868,936,806 in the hands of receivers. During the year 19 companies, operating in all 2486 miles of road, with \$61,169,962 securities, were placed in receivers' hands. This compares with nine companies in 1916 with 4439 miles of railroad. There were 20 roads, with 10,963 miles operated, sold under foreclosure. This compares with 26 roads, with 8355 miles operated, sold in 1916.

A total of 2809 miles of road were equipped with block signals during the year, or about 700 miles more than the increase recorded in 1916. Nearly all of the new signaling is of the automatic type and this is also true of the signaling under construction, 1647 miles, and that proposed for 1918, 1240 miles.

Bituminous Coal Output

WASHINGTON, Jan. 15.—The bituminous coal output for 1917 is placed by the United States Geological Survey at 544,000,000 tons, an increase of 42,000,000 tons over 1916. This is about 6,000,000 below the estimate of Fuel Administrator Garfield, the difference being due to a falling off in production during December, when, because of car shortage, output was the smallest since last April. The last week in December showed marked improvement, but the mines were still 12 per cent below their total capacity.

The fuel administration announces that America's coal exports this year will be limited to shipments for war purposes and to those necessary in exchange for commodities the United States must import. A heavy reduction in exports as compared with 1917 will be positively insisted upon.

Buildings are being erected near the speedway in Indianapolis as warehouses for supplies and shops for repairs for all army aeroplanes east of the Mississippi River and south of the Ohio. The buildings will occupy a 20-acre site. The Bedford Stone & Construction Co., Indianapolis, has the contract. The main building for body repairs will be 241 by 264 ft., and for repairing motors 139 by 234 ft. The approximate cost of the buildings is \$600,000. Twenty-five officers and about 700 men will be employed at the plant. Four barracks are being built for officers and men.

Strength of Wrought-Iron Pipe Welds

A series of flattening tests on pipe was recently carried out by Edward A. Klages at the University of Pittsburgh. In all, 160 pieces of wrought-iron pipe ranging from 1 to 12 in. in diameter were tested. Both butt weld and lap weld specimens were used and these were placed in the testing machine so that the weld was at varying angles to the vertically applied pressure.

Only 20 pieces, or 12½ per cent, of all the pieces tested showed the commencement of the failure at the weld. Of these failures, 12 were in 24 pieces of 1-in. butt weld pipe, and only eight weld failures occurred in the 136 pieces of lap weld pipe of all sizes that were tested. From the results of the tests which are summarized in the accompanying table it may be seen that in the main there was less tendency to fracture at the weld than elsewhere, thus leading to the assumption that the weld in the pipe was at least as strong as the body metal for a like application of the stress. This was also shown by the fact that the position of the weld with respect to the ap-

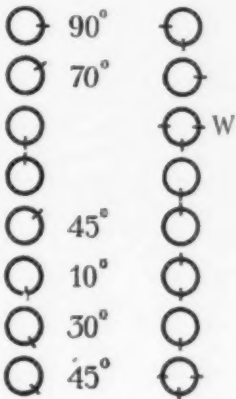
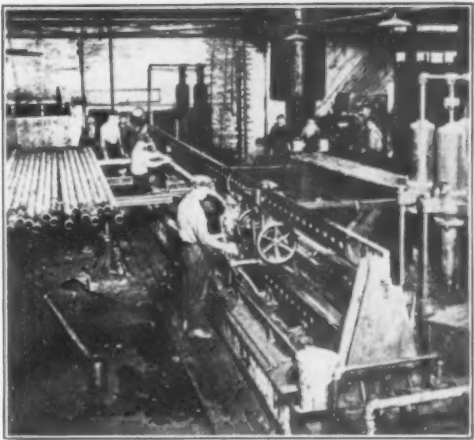


Diagram Showing the Angle between the Weld and the Point at which the Pressure Was Applied to the 2-In. Pipe as Well as the Position of the Primary Fracture with Reference to the Weld



The Finished Pipe Is Subjected to a Hydrostatic Pressure Test of 250 to 2000 Lb.

plied load in flattening had no influence upon the location of the place of initial failure.

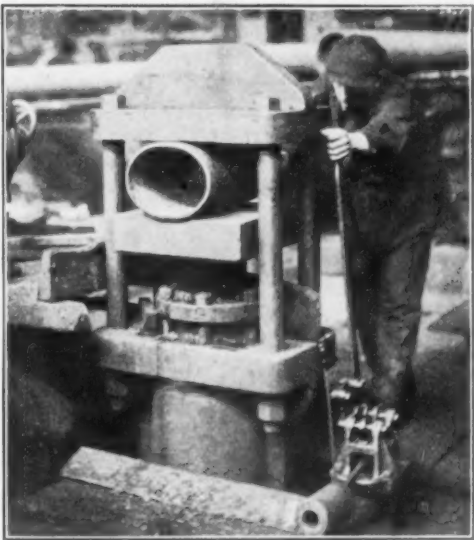
All of the specimens tested were of genuine wrought-iron pipe made by the A. M. Byers Co., Pittsburgh. In the pipe mill, a hydrostatic test was given the pipe, the pressure applied ranging from 250 to 2000 lb., and in the majority of cases being 750 to 1000 lb. The crop ends of pipe were also subjected to a crushing test as shown. As the greatest number of defects naturally will occur at the ends of the pipe, this test can be relied upon to lead to immediate detection and rejection of a defective length of pipe.

Summary of Tests

	Pieces Tested	Number Weld Failures
Regular		
1-in., butt weld	8	4
2-in., lap weld	8	..
4-in., lap weld	8	..
8-in., lap weld	8	..
12-in., lap weld	8	..
Extra Heavy		
1-in., butt weld	8	4
2-in., lap weld	8	2
4-in., lap weld	8	..
8-in., lap weld	8	..
12-in., lap weld	8	..
Double Extra Heavy		
1-in., butt weld	8	4
2-in., lap weld	8	..
3-in., lap weld	8	..
4-in., lap weld	8	..
Lapweld Tubing		
2-in., 4-lb	8	2
2-in., 4½-lb	8	..
3-in., 8½-lb	8	..
3-in., 10-lb	8	1
4-in., 11-lb	8	..
4-in., 11¼-lb	8	3
	160	20

Carnegie Steel Co. Annual Dinner

The annual meeting of the district sales managers of the Carnegie Steel Co. was held in its general offices in the Carnegie Building, Pittsburgh, on Friday and Saturday, Jan. 4 and 5. Sales managers were in attendance from as far as the Pacific Coast. Matters of general interest to the selling departments were fully discussed, and the sales managers made very complete reports as to industrial conditions existing in their respective territories. The sessions were followed by the twenty-first annual dinner of operating and executive officials of the Carnegie Steel Co., held in the William Penn Hotel, Pittsburgh, Saturday evening, Jan. 5. The dinner was attended by about 45 officials and sales managers of the company and was one of the most successful in every way ever given. As a food conservation measure the menu served was much more modest than usual at these functions. Judge E. H. Gary, chairman, and James A. Farrell, president of the United States Steel Corporation, were unable to be present, but sent letters of felicitation. Judge James H. Reed acted as toastmaster. Homer D. Williams, president of the Carnegie Steel Co., made an address on "Steel—Its Place in the Great War"; Louis C. Bihler, general traffic manager of the company, spoke on "Transportation—Its Place in the Great Struggle"; Charles E. Dinkey, general superintendent of the Edgar Thomson steel works and blast furnaces, chose as his subject "Man, the Human Equation in the War," and Col. Henry P. Bope, vice-president and general manager of sales, delivered a masterful address on "Our Country." Of 104 invited to the dinner, only 11 were absent.



The Crop Ends of the Pipe Are Crushed to Test the Strength of the Weld

Frank D. Chase, industrial engineer, Chicago, has closed a contract with the General Motors Corporation for the design and installation of a complete conveying and elevating system in the Marquette plant of the corporation at Saginaw, Mich., for munitions work.

In October, 1917, eight vessels were launched in Japan aggregating 38,420 tons, according to *Eastern Commerce*, a Japanese paper printed in English. Since April, 1917, 43 vessels, representing a total tonnage of 193,147, have been launched.

Problem of Labor for War Work Is Serious

Shortage of Men Delays Preparations— Germany Far Ahead of Her Enemies—Inter- esting Testimony Before Senate Committee

WASHINGTON, Jan. 15.—The skilled labor problem looms larger daily as the co-ordination of the work of the War and Navy Departments and the United States Shipping Board proceeds. Not less than 400,000 additional mechanics of all trades, but chiefly workers in metals, are urgently needed, and the Government is making herculean efforts to obtain them. Once again the suggestion of labor conscription is heard, and while the authorities deprecate such an expedient, the War Department is pursuing a practically conscriptive policy by taking over as much of the war work as possible and providing the necessary skilled labor through a careful sifting of the draft registers. The situation has become additionally complicated by the discovery that the unprecedented scale of wages now being paid in the shipyards and for other construction has resulted in wholesale idling, the time lost in some plants amounting to 25 or 30 per cent.

The critical shortage of trained labor, which is delaying war preparations in many directions, is causing great anxiety to the authorities, whose confidential reports from Europe indicate that the preparations along this line made by Germany during several years before the war have given that nation a decided advantage which is being fully utilized. To a much greater extent than any of the other combatants German forces include divisions of men specially skilled not only in construction work but in every form of emergency repair work, and even in the use of specially designed tools intended for the destruction of guns and other war material which may be captured or abandoned in military movements.

Germany's Preparedness

As an illustration of Germany's preparedness along these lines, it is stated that the Kaiser's forces include no less than 20,000 oxy-acetylene welders and that this number is being steadily increased by systematic means. These welders are employed for quick work in the mending of broken axles of trucks, the repair of machinery, airplanes and bridges and for other similar purposes. One of the most important utilizations of these welders, however, is for the purpose of rendering unfit for service guns, mounts, trucks, etc., captured or abandoned. With the oxy-acetylene flame it is possible in a very short time not only to render a large caliber gun unfit for further service but actually to cut it up into scrap.

As the result of reports from military observers with the American forces in France, a special effort is being made to recruit welders for Pershing's forces, but great difficulty is being encountered. A somewhat exaggerated statement current here is to the effect that, according to figures submitted to the Government by the labor unions, there are only 15 available expert oxy-acetylene welders in the country, while the aviation service has made a requisition for 3000, and many others are needed for different branches of the military service.

A single department of the Army, it is said, needs immediately 20,000 motor truck drivers capable of making comprehensive repairs to their cars, while the Army as a whole wants at least 40,000 extra motor repair men, of whom 3000 are specialists in ignition and magneto work. Another branch is seeking 15,000 coppersmiths and sheet metal workers.

Needs of Shipping Board

The largest single requisition for skilled labor is that of the United States Shipping Board, which, according to testimony given before the Senate Commit-

tee on Commerce during the past week by Commissioner R. B. Stevens, who has charge of the board's labor department, now urgently needs between 200,000 and 300,000 additional men. The difficulty in estimating the exact number is due to the large turnover of labor in the shipbuilding industry, which appears to have become more or less demoralized as the result of the high wages paid. Of 106 shipbuilding companies which have contracts with the Emergency Fleet Corporation, there have been serious stoppages of work in 30 since the war began, the total loss aggregating 596,992 working days. These stoppages, however, were due wholly to strikes, and the lost time does not include idling. As the result of the strikes, wage increases were granted by the various yards upon the advice of the shipping board, and the already high scale was increased between 40 and 50 per cent, in addition to which a bonus of 10 per cent is now paid to every man working six days a week. The shipping board pays this bonus in addition to the labor cost as fixed by the terms of the contract for the ships.

Replying to a question by a member of the Senate committee as to the necessity for paying a bonus to induce the men to work continuously, Mr. Stevens said:

"There are in the shipbuilding industry a good many young men. Some of the work is very hard, riveting especially, and men without families, if they can earn in four days as much money as they need, are very apt to lay off. We have difficulty with such men who, under the present scale of wages, are earning high pay."

High Wages, Decreased Work

Mr. Stevens' attention was drawn to the fact that the shipping board justified the high wages paid in the western shipyards because of the increased cost of living, and he was asked to reconcile this with the fact that it did not appear to be necessary for the men to work more than four days a week in order to subsist comfortably under present conditions. Mr. Stevens responded that the practice referred to was chiefly indulged in by single men receiving the highest wages.

"Is it not a fact," asked a member of the committee, "that the high scale of wages has had a tendency to decrease the hours of labor?"

"That opinion has been stated to us by a good many manufacturers," replied Mr. Stevens. "I think you will find in almost any industry that there is more or less of a percentage of men who do not give a continuous week's work."

"Do you not think that the effect of the high wages and the extra increase you have mentioned has been that the men lay off part of the time; that they find that they have earned enough to live on and to have a good time on working four days a week instead of the whole week?"

"That is a factor in this, of course."

"Then is it not true that you have practically raised up a kind of kicking gun by this increase?"

Before Mr. Stevens could reply to this question he was diverted by an inquiry from another member of the committee, but it was made perfectly clear that the present wage scale is producing an output substantially less than that secured when the scale was but two-thirds of the present rates.

Mr. Stevens was also asked as to whether he did not think that "some forces in labor are endeavoring to engage in profiteering," to which he replied in the affirmative, adding that he thought both labor and capital were seeking to secure all possible advantages from the present situation. At this juncture the fol-

lowing question was asked by a member of the committee:

"The Government has facilities, where a builder undertakes a profiteering program, to seize his plant and go ahead with its operations, but what remedy have we for the combination of labor that enters into profiteering?"

"We have none," the witness replied, "if you mean direct action which the Government can take against labor. Where the owner of the property undertakes to hold up the Government, it can take the property and operate it. If there is an attempt to hold up the Government by organized labor and to secure greater pay than is fair and just, I do not think it is possible to commandeer labor."

"You do not think in a war emergency, when the success of the nation is dependent on our shipbuilding program, that it would be fair or just or practicable to commandeer labor?"

"I am not saying whether it would be fair or just. I am saying, as a practical matter, I do not think it could be done. I do not think it would work satisfactorily. I do not think you would get much more output than under normal conditions."

Experience of England

Here a member of the committee read to the witness an extract from the report of the British Industrial Commission which recently visited the United States in which Commissioner Stephenson Kent said that "if Great Britain had had one-eighth of the number of labor troubles in the past two years that the United States has had," it would have had to "conclude a disgraceful peace with Germany by this time." Mr. Stevens declined to comment on this statement, declaring that he was not in a position to make a comparison of conditions here and in Great Britain. He added, however, that the shipping board had done everything possible to increase the output of the shipbuilding plants and had raised wages and put in the bonus system as an experiment to see whether the men could not be kept more continuously employed.

For the purpose of developing a definite and comprehensive program for the handling of the problem of securing the necessary labor, skilled and unskilled, for war work, to provide for its distribution, dilution and housing, and for the adjustment of labor disputes, a series of conferences has been held by the Council of National Defense during the past week and a project for war labor administration has been submitted to the President and approved by him. The Secretary of Labor has been directed by the President to undertake this administration and to provide for this purpose the following agencies:

Plan of Action Prescribed

1. A means of furnishing an adequate and stable supply of labor to war industries. This will include: (a) a satisfactory system of labor exchanges; (b) a satisfactory method and administration of training of workers; (c) an agency for determining priorities of labor demand; and (d) agencies for dilution of skilled labor as and when needed.

2. Machinery which will provide for the immediate and equitable adjustment of disputes in accordance with principles to be agreed upon between labor and capital and without stoppage of work. Such machinery would deal with demands concerning wages, hours, shop conditions, etc.

3. Machinery for safeguarding conditions of labor in the production of war essentials: This to include industrial, hygiene, safety, women and child labor, etc.

4. Machinery for safeguarding conditions of living, including housing, transportation, etc.

5. Fact-gathering body to assemble and present data, collected through various existing governmental agencies or by independent research, to furnish the information necessary for effective executive action.

6. Information and education division, which has the functions of developing sound public sentiment, securing an exchange of information between departments of labor administration, and promotion in indus-

trial plants of local machinery helpful in carrying out the national labor program.

Purpose of Secretary of Labor

Some of these agencies already exist in part in the Department of Labor. For example, the mediation service, the system of labor exchanges and the Bureau of Labor Statistics can be utilized to the extent they are found useful in carrying out the new program.

It is the purpose of the Secretary of Labor to undertake the work outlined above on an adequate scale. He will call to his assistance as advisers and administrators a well-balanced corps of men of high standing, representing capital, labor and the public. These persons will assist him in formulating and efficiently executing policies which will command the approval and support of employers, employees, and the public throughout the United States. The secretary and his advisers will give early attention to the question whether congressional action shall be requested.

The Secretary of Labor will bring the new service into touch with the needs of the various departments of the Government, including the shipping board, in order that labor policies may be made uniform and that the service thus established under the President's order shall adequately meet the needs of the present emergency.

In outlining the work to be done under this comprehensive project Secretary of Labor Wilson has authorized the following statement:

Denying the existence of a real labor shortage in the United States and the necessity of a conscription of labor and asserting that the solution of the war-labor problem lies in the proper distribution of the available supply of workers, the Department of Labor announces that the United States Employment Service will serve as the national labor mobilization and distribution machine. Allowing for the turnover, the department estimates the reorganized and expanded Federal service must place between three and four million workers in agriculture, shipbuilding and the other war industries this year.

To successfully handle its gigantic task, the Employment Service has been divorced from the Bureau of Immigration and made a separate bureau of the Labor Department, and one of the largest and most important of the National Government's war-prosecuting agencies. John B. Densmore of Montana, formerly solicitor for the Labor Department, has been named by Secretary of Labor Wilson as director of the reorganized service.

For several months the Labor Department has been quietly working to equip the Federal Employment Service to handle the war-labor problem. Funds amounting to more than \$1,000,000 have been made available and will keep the labor-supplying machine in operation until the end of the fiscal year in June; \$250,000 of the total was appropriated by Congress at its last session, and the President recently allotted \$825,000 more from his war-emergency fund.

The service is now covering the entire continent with a network of labor exchanges. Federal, State, and municipal employment offices and the facilities of the various State councils of defense are being utilized. Already more than 200 such exchanges are in operation and the immediate establishment of 50 more is projected.

The Federal Board for Vocational Training has undertaken to mobilize the schools of the country with a view to training the conscripted soldiers before they go to cantonments and has laid before the Secretary of War a concrete plan to utilize the entire available educational resources and, if necessary, every industrial plant having equipment which can be made to serve purposes of training. The plan calls for an appropriation of \$10,000,000 with which to place 200,000 conscripted men of the second draft army under subsistence and pay during vocational training. The plan calls for reimbursement to the schools for the use of their plants and the payment of instructors. By prompt action, which means closing the industrial and technical schools of the country early next spring and turning them over to the Army, it is estimated that by the fall of 1918 it will be possible to graduate 60,000 mechanics and technical experts from 120 institutions now listed. The general staff is now giving careful consideration to this project.

W. L. C.

Women's Labor in British War Industries

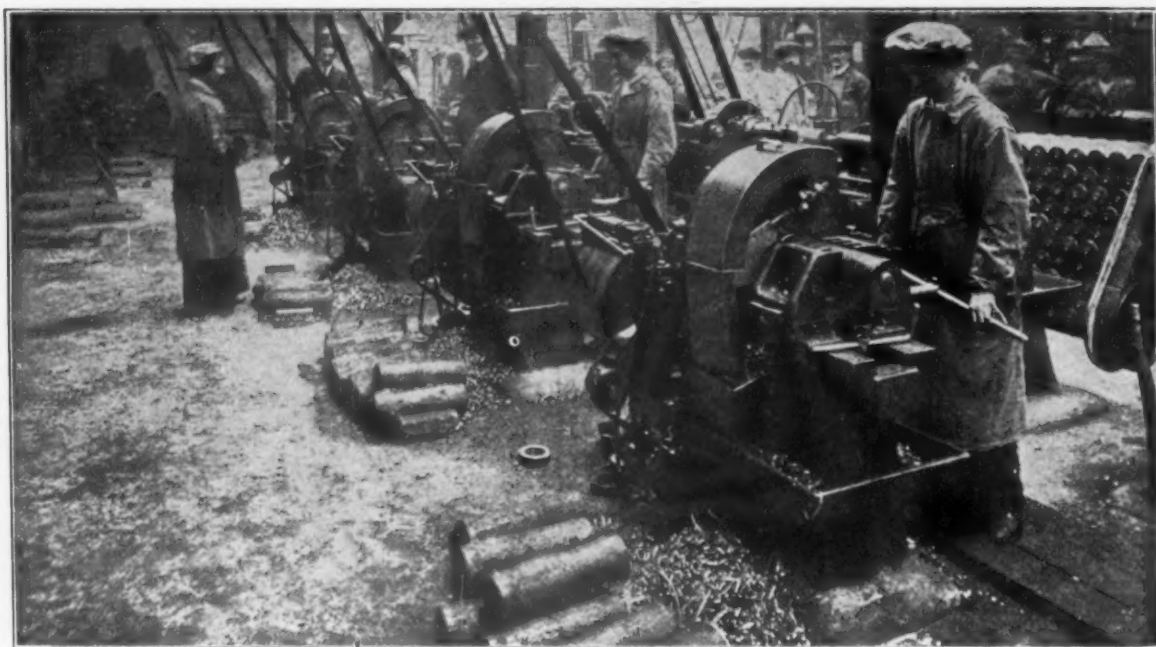
Its Great Scope and the Problems Involved—
Wages, Efficiency and Working Conditions—
Industrial Canteens—After-the-War Effects

BY L. H. QUIN*

THE utilization of female labor on an enormous scale in the manufacturing industries in Great Britain, partly replacing male labor, and partly because of the urgent need of more workers, has exercised and is exercising a far-reaching influence upon national life. The introduction of female labor in this way was an experiment but it was rendered imperative by war conditions, and it has much more than justified its sponsors. How far the new industrial conditions common to Europe will be perpetuated after the war nobody can say. Millions of men have lost their lives and many millions more

of munitions work successfully undertaken by women in temporary substitution for or dilution of male labor covers over 200 processes, and scores of headings from aeroplanes and artillery to marine engineering, optical munitions and so on down to wire netting and woodwork for shell cases.

The tale is not yet fully told, for the necessity of replacing wastage in the forces will eventually compel the release of all men who can be replaced by women, and employers of labor are being urged to secure and train temporary substitutes as early as possible, to avoid any falling off in production. Sta-



British Women Operating Machines for Forming the Noses of 4.5-In. Shells Before Rough Turning

have been maimed for life, so that as far as Europe is concerned there are no longer anything like enough men to maintain output at the pre-war level. Hence the probability that some arrangement will be made with the labor unions by which female labor in male industries will be recognized under peace conditions, when once the dislocation ensuing upon the cessation of manufacture of munitions and other war material is overcome.

Scope of Women's Labor

Employers as a body are very favorably impressed by the capacity shown by women and there seems very little indeed that they cannot do. Even in heavy work they are useful. To-day women are barrowing coke, digging clay, loading coal, acting as laborers in engineering shops, shell factories and shipyards, stoking furnaces, etc., all of which is hard manual toil, while in the lighter sections of industrial effort they run through all processes from A to Z. A detailed list of the operations in which women are successfully employed to-day fills 30 columns of an official brochure, while the category

tistics are not available as to the number of women employed in the United Kingdom on war work direct or in substitution for men, but the total must run into millions. An official return up to July, 1916, showed that over 750,000 women had been taken on by private employers alone in direct replacement of men and this figure has been greatly increased since then, while it takes no account of direct employment in connection with new undertakings which have sprung up like mushrooms all over the country. The Board of Trade believes that there is still about a million and a half women possessed of industrial or commercial experience, which could be used to replace men, but nearly a million of these are over 35 years of age, and probably most of them are married. There is no advantage to the nation in impressing female labor of this type, for it would involve the abandonment of domestic responsibilities with its inevitable effects upon child life and rearing.

Prior to the war the state was very careful to regulate the conditions under which female labor was employed but it has considerably relaxed its attitude since. Women are now called upon to do

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Women Operating Turret Lathes on the Body of Fuses in a British Munition Plant

night work, extended hours, long overtime and Sunday work and to put up with reduced meal times, while being called upon to stand employment in bad atmospheres and to perform heavy manual tasks, all formerly forbidden. It is pointed out by the Women's Industrial Organization that these reactionary conditions have already had bad effects, with the result that in many cases the hours have had to be shortened and the overtime lessened while enough has been seen to show the urgent necessity from the national standpoint of reverting to pre-war conditions at the earliest possible moment. It is admitted, too, that the effects of overwork and overstrain are not confined to cases where women are acting in substitution for men, but are also experienced where women's work alone is concerned.

The Wages of Women

Wages of women doing men's work in the engineering trade are regulated by orders issued by the Ministry of Munitions. One of these fixes £1 a week as a minimum wage for women 18 years old employed on work normally done by men, for any working week of 48 hours or less, and 6d per hour for every additional hour up to 54 hours a week. No ordinary week may exceed 54 hours. These rates may be increased by agreement or by arbitration. Wages

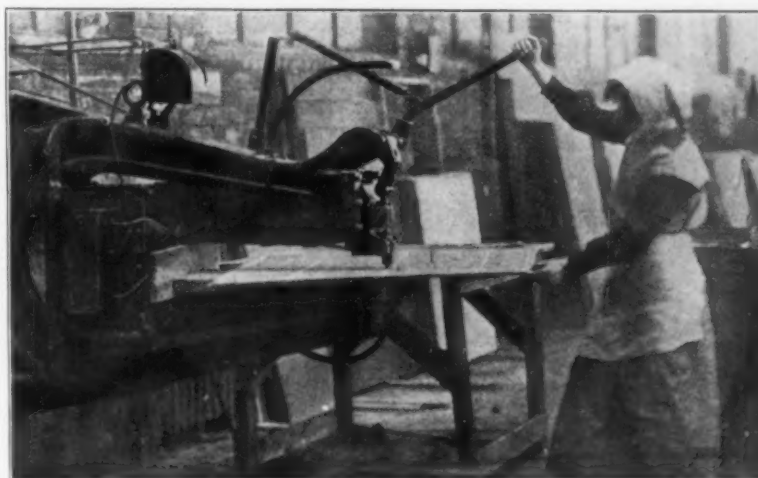
on piecework frequently run up to £2 to £3 a week and generally speaking wages in mechanical engineering for women doing men's work are well above the ordinary woman's rate. The substitution of women for men has in this direction at least been of advantage to the former and, in certain trades where definite arrangements have been made, the women's wages approximate to those of the men.

In cases where women are employed on women's work, wages have gone up all round since the war, though there are wide variations, the scale of remuneration in the fuse and powder grades having indeed been revolutionized. Taken all round, however, it is doubtful whether labor is getting more than the equivalent of the general advance in the cost of living.

The Efficiency of Women

With respect to the efficiency of women engaged on munition work the Ministry of Munitions recently issued a report showing how female labor answered these demands. In the case of drilling 18 pdr. high explosive shells it is stated:

The output of these drilling machines has been maintained under the new conditions, and the women complain of no fatigue or difficulty whatever in carrying out this operation. It is advisable to provide them



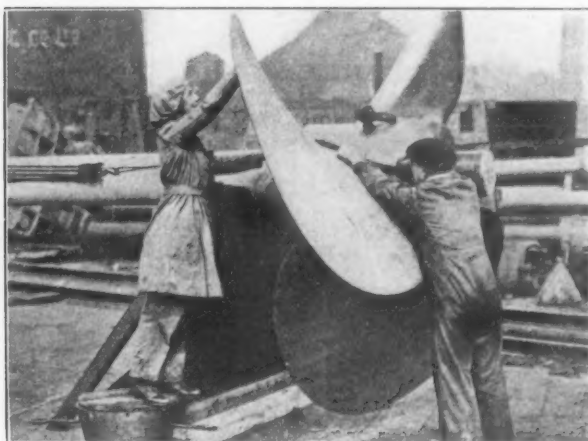
Electric Spot Welding on Boiler Laggings in a British Shop and Boring on a Chucking Lathe which Has a Special Fixture for Repetition Work



British Women Wheeling Coke at a Gas Works

with waterproof aprons and to arrange that between each machine is a raised wooden platform, so that both the feet and dress of the operator are kept dry. Only one change has been made in the machines to suit the women. At first the shell blanks were dropped into a round jig and, owing to the speed of drilling, the blank was frequently wedged in the chuck after the drilling was completed. To avoid the heavy work of forcing the shell out of the chuck, a new type, designed by the drilling machine maker was fitted in which the depth of the hole is regulated by an automatic cut-off. One male supervisor, an unskilled workman, is provided for each eight machines and the blanks are brought up to the machines in trucks designed for the purpose.

The rough turning and profile finishing together with the boring of 18 pdr. and 4.5 high explosive shells are said to be done by women in all parts of the country with complete success. The number of wasters produced has been lessened materially by subdividing each complicated operation into a number of simple ones, while the addition of stops which prevent the tool turning below a certain size and also automatic cut-off devices on boring lathes have still further decreased the chance of spoiled work. In the roughing operations the women have proved to be capable of operating not only one lathe, but two. It has been found that, owing to several minutes being occupied while the tool is traversing the face of the shell, it is easily possible to remove the finished blank from the other lathe and replace it by another, ready for machining, without any loss of output due to this duplication of work. It is not suggested that women be asked to operate two machines as a gen-



Female Labor Assisting in Setting Propellers in British Shipyards

eral rule. The sole object of this and the foregoing example is to show that, if one woman can continuously operate two machines, the handling of one machine is, without doubt a perfectly simple achievement. Time-keeping in the factories employing women on projectile work is excellent, the record being so good as to make it difficult to express lost time as a percentage.

Women Labor on Heavy Shells

There has been, and is still, some difference of opinion as to the employment of women on shells of 6-in. calibre and upward. The experience of those employing women labor on large shell bodies is stated to be that the actual cutting operations demand no greater strain from the operator than do those on smaller shell but that the lifting in and out is the all-important factor in the operations on heavy shell. Owing to the fact that women have only recently been employed on the heavier shells, some factories are using, temporarily, lifting devices capable of considerable improvement. It is pointed out that fairly elaborate lifting appliances are essential for efficient operation and that they constitute a deciding factor in the employment of women on heavy projectiles. Some of the newer factories use special bogies embodying lifting appliances which render the handling of shells of large calibre a matter requiring no physical strain whatever. Given, therefore, satisfactory handling devices, there appears to be no reason whatever why women should not be quite as generally employed on heavy shells as on projectiles of smaller diameter.

Dealing with the employment of women in general machine shops the report referred to says that:

The question of the dilution of skilled male labor by women in general munition shops is admittedly a more difficult problem. In projectile work and other operations in which the pieces are manufactured in tens of thousands and for which entirely special lathes and machines are designed, super-specialization and subdivision of operations render women's work comparatively easy to organize. In the general machine shop, however, where pieces of work are dealt with in numbers of 10 and 20, no such special "fool-proof" devices or limitation of the number of operations per machine can be organized.

Female Labor After the War

It may be as well to quote here some passages from a report drawn up under trade union auspices dealing with the position of women after the war. The report says that:

The result of war conditions has naturally been very marked in its effects on the health and well-being of the women and children at home. The demand for the work of women in factories and workshops and in transport trades has been such that a large number of married women have been pressed into industrial employment. This means on the one hand a certain neglect of the duty of keeping their homes and on the other an extra and heavy burden on their strength in order to fulfill, however inadequately, some part of those necessary duties. The children, as well as the women, have suffered from these results, though in some cases the additional wages of the mother and the large number of earners in a family have enabled the family to live better so far as food is concerned than they would otherwise have done. This advantage was greater at an earlier date, but the growing cost of living is fast reducing the family provisioning to a dangerously low level.

The long hours of work, and especially the night work, with the additional strain of the frequent Sunday shifts, have, however, had a very serious effect on the well-being and health of the workers. The young women have suffered greatly from this strain, and ob-

servation has shown not only the soundness of the previous prohibition of night work, but also the failure, from the point of view both of the worker and of output, of the long shifts of 12 hours and the continuance of Sunday work.

The need of obtaining workers at new works in new areas, or in greatly increased numbers in established industrial centers, has led to a terrible condition of affairs in regard to housing. The efforts to provide temporary housing on the barrack or hut system for women workers have been of doubtful value. There appears to be no adequate advantage to offset the real disadvantages of the "compound" system, and the revival of the system of "truck." A great opportunity for a communal housing experiment has been missed and mistakes of construction might have been avoided if women housing experts had been consulted. The workers in general prefer to pay even exorbitant rates, even 12s. for a third of a bed, for lodgings of their own choosing, rather than occupy the huts put up in certain areas under the control and supervision of the employers.

But further problems arise from this transference of workers from their own homes to new areas. For young girls it means the going from home into wholly new conditions, and the strain of heavy work and long hours tells all the more heavily upon them. They have also the disadvantage of losing the care and thoughtfulness and the natural restraints of a home life at an age when they often rely on them very greatly. If they are not living away from home they have often long and tiring journeys to and from their work, adding thus extra hours to their long working period. To these disadvantages must be added the lack of holidays and the need of rest which as the war continues grows ever more necessary.

Both for married women and the younger workers the present conditions suggest very serious problems. The women now working will feel their strength lessened in many instances for the remainder of their lives, and it is realized the perilous results when we remember the burden of motherhood which they may be bearing now or in the future.

Against this we must count the efforts of the health of munition workers committee to improve the conditions of work, the cleanliness of surroundings, to have rest rooms and dining rooms provided, to advise against all continuance of long hours and Sunday work, and to urge the provision of proper meals at factories. They have also forwarded the appointment of welfare workers and the encouragement of welfare work in munition and other factories. While a considerable number of improvements have been made in regard to the cleanliness of factory conditions, and the provision of meals, rest rooms, etc., the appointment of welfare workers is open to very serious objection, and that in many places it has been followed by results that are not at all conducive to improvements in their condition.

We have finally to note the release of girls below the age of 14 for work in industry and agriculture. By this means the education of these children has been restricted and their young, growing bodies have been subjected to the heavy strain of industrial employment at an early age.

Canteen Arrangements at Factories

One result of the extended use of female labor has been to cause special attention to be given to the well-being of the workers, and this has brought about a great extension of the canteen arrangements at factories, etc. The importance of proper nutrition if a high standard of work is demanded is not to be overestimated and experience has taught that, where arrangements are available for food suitable in quantity and quality to be taken under comfortable conditions, output tends to keep up both in amount and in character. Hence the growth in all directions of the industrial canteen, especially where large numbers of girls and women are employed. The essential conditions governing these



A Woman Stoker at a Large Plant in South London

canteens are that the dining rooms be attractive, easily accessible, with hot and appetizing meals promptly served without overdue crowding at the counter.

As regards munitions works, the official attitude leans towards any of the following types. Local requirements necessarily vary widely according to local conditions, the number of hands, the class of work done and so forth, but one or other of the following are approved:

A room in which workers may eat food which they have brought from home.

A room furnished with a "hot-plate," or a warming cupboard, and boilers to supply hot water.

A similar room furnished in addition with apparatus for cooking food brought by the workers, and provided with attendants.

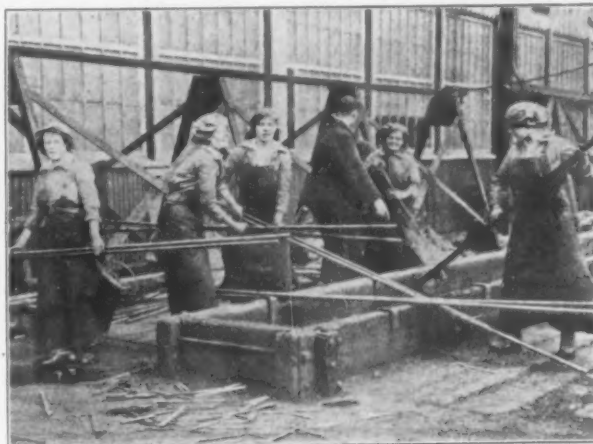
A refreshment barrow to perambulate the workshops at appointed hours (useful for light refreshments during long spells or night shifts).

A fixed refreshment bar or buffet.

A dining room supplying cheap hot and cold dinners.

Such a dining room associated with an institute or club with facilities for rest and recreation. (Gymnasium, baths, reading room, billiards, etc.)

The national importance of the industrial canteen was recognized by the authorities early in 1915, when female labor began to be utilized on a growing scale, and a canteen committee was appointed by the Central Control Board to co-ordinate the services of the various voluntary and other societies engaged in improving facilities for supplying good food at low rates. All national factories have now their own

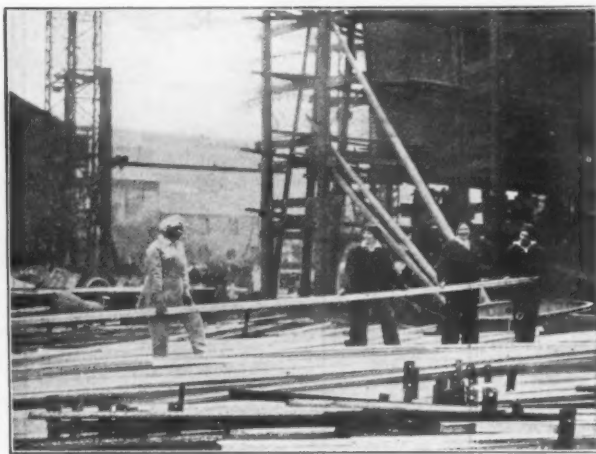


Women Handling Rods and Pipes in British Shipyards

canteens which are provided at public cost where necessary. In controlled works, the Central Control Board have been empowered to facilitate the provision of canteens and if necessary pay for them out of profits, while in voluntary canteens, approved by the Central Control Board, which cater for munition workers, the authorities may pay half the capital expenditure involved.

Conditions After the War

Even allowing for the altered industrial conditions, already accepted, things are nevertheless in a state of flux, and no man can foresee the end—except this, that labor and democracy generally are restless and restive, and that the time of post-war reconstruction will afford previously undreamed of opportunities for effecting a radical revision of industrial and economic bases. There can be no return to the old ways, and labor, both male and female, is beginning to set to work to effect its own salvation. When the war ends there will be a certain disturbance of women labor because a number of the domestic servants who left to enter munitions works will return to their former sphere of activity. On the other hand, widows of men who have fallen,



Women Doing Heavy Work in British Shipyards Handling Long Steel Bars

wives of disabled men and others who have sustained economic loss through the war, will be forced to continue in wage earning employments. Somehow or other the labor unions will have to recognize these women workers in men's tasks and concede them a status, because the wastage of war has already wrought havoc in the ranks of industry, and the end is not yet in sight. It is inevitable, therefore, that there must be a permanent and probably a considerable increase in the number of women engaged in industrial employment, especially in their relative proportion to men.

What the industrial women's organizations aim at is the adoption of the principle of equal pay for equal work, believing, and probably correctly, that the employment of women must have a depressing effect upon the wages of men so long as there is any economic sex distinction. For this reason it is regarded as important, for women as well as for men, that wages should be maintained at the highest possible level, for when women are not themselves wage earners they are dependent upon men who are.

Already the war has wrought two changes in the position of the women workers, both greatly to their advantage. In the first place, women have found many trades opened to them in which higher wages have been earned than they have been accustomed to, while in the second place the trade unions have been able to utilize the demand for female labor to

obtain marked increases in the wages of women in many women's trades, while succeeding in getting their rates in men's trades approximated to those of men. Even yet, however, it is the belief of the women's industrial organizations that the standard of pay for female labor is not such as to guarantee them a reasonable living wage. Meanwhile, the women are to a great extent unorganized, and it is highly probable that the trade unions will take this matter in hand very seriously before long. It is suggested that these unions should throw open membership to all women workers and should provide appropriate scales of contribution and benefits, while arranging for women to be represented on the governing bodies and providing special machinery for dealing with the special needs and grievances of women.

Female Labor and the Future Generation

Arising out of all this, of course, comes the maternity question. It is pointed out in this connection that the post-war industrial position of women will have a two-fold effect upon the national motherhood. The girls who are to be the mothers of the next generation have undergone a prolonged period of great physical strain arising from long hours, excessive overtime, Sunday work, night work, no holidays, working in hot atmospheres and performing heavy manual labor. All these conditions affect physique and must involve increased care and attention under maternity conditions.

Bad effects from all of these causes are already apparent, while an entirely new deteriorating condition has been the use on a large scale of female labor in poisonous processes such as filling shells with tri-nitro-toluol. In the second place, there will be a larger number of married women in industry than ever before, which also involves increased need for care of maternity. It is useless to say that married women should not be at work. What must be done is to afford adequate provision for maternity and infancy, and this will be the duty of the state.

Tests on British Blast-Furnace Slags

Tests on eight different samples of blast-furnace slag have been carried out recently by a commission appointed by the Prussian Ministry of Public Works according to the *London Iron and Coal Trades Review*. The object was to ascertain whether such slag would be a suitable material to be used as road metal and railroad ballast. The material to be tested consisted of sizes between 25 and 40 mm. (1 and 1.6 in.), 5 kg. (11 lb.) of which was placed in every case in a ball mill (but without the balls) having a corrugated drum and an inclined axis. After the drum had been slowly revolved (42 r.p.m.) for 30 min., the material thus treated was removed and passed over seven sieves of different sized meshes and the percentage of the residue left on each sieve noted. In order to be able to compare the wearing qualities of the slags, samples of basalt from Bavaria, of granite from Silesia, and of syenite from Saxony were tested in exactly the same way as the slags. The results compared as follows: Two of the slags were equal to basalt as regards wearing quality, two others ranked between basalt and granite and syenite and only two samples were inferior to these materials. Further researches in the laboratory and trials in the road beds are being conducted.

The Damascus Mfg. Co., Cassius Avenue and East Ninety-third Street, Cleveland, maker of oils of all kinds and cutting compounds, has been taken over by the Warren G. Black Oil Co. Both companies will be operated in the future under the name of the Damascus Mfg. Co., and arrangements have been made to continue the manufacture of the Damascus brand products of that company as well as the King line formerly marketed by the Black company.

RULINGS ON STEEL PRICES

Answers to Questions Raised Concerning Government Schedules

A number of questions relating to prices of iron and steel products, as agreed upon by representatives of the Government and the American Iron and Steel Institute, have been submitted to THE IRON AGE and ruled upon by the Committee on Steel and Steel Products of the American Iron and Steel Institute.

Old Material

A Bridgeport company inquires as to the maximum prices at which it is entitled to sell or at which the buyer is entitled to buy the following old material:

1. Heavy cast iron, old scrap molds, rolls and machinery; extra heavy cast iron and steel castings.
2. Wrought iron, steel and cast steel pinions.
3. Light cast and wrought iron, skeleton steel and pipe.
4. Hoops and wire.
5. Burnt iron, borings and turnings.
6. Tinned steel scrap.

The ruling is that the prices approved by President Wilson Nov. 5, together with the recommendation of the Institute dated Dec. 22 and published in THE IRON AGE of Dec. 27, would indicate the following prices for the various classes of scrap mentioned:

Class 1.—\$30 per gross ton delivered f.o.b. consumer's works. The only possible exception would be scrap rolls, for which you might be able to obtain \$30 at your works from the parties from whom you purchased the rolls. The roll makers are permitted to pay this price in accordance with the recommendation of the committee dated Jan. 7 in regard to the price of iron rolls, which appeared in THE IRON AGE issue of Jan. 10.

Class 2.—Provided the wrought iron you mention is really wrought iron, you can charge a price of \$35 per gross ton for such material.

Classes 3 and 4.—Both these classes would carry a maximum of \$30 per gross ton delivered, except that the wrought iron if separated might carry a price of \$35.

Class 5.—Would carry a maximum of \$20 per gross ton delivered.

Class 6.—\$30 per gross ton.

It did not seem feasible to the committee to recommend a price for each particular grade. Owing to the great number of grades and the variations in the specifications covering each grade, it seemed best to make the broad groupings only and let the various grades in the groups adjust themselves to the normal differentials in accordance with supply and demand.

A RULING ON CAST SCRAP

Some of the dealers as well as foundrymen have been under the impression that the maximum price of \$30 per gross ton for No. 1 cast iron applied only to this class of material when sold to a steel mill. There has also been some question as to the splitting of commissions. On these matters the rulings are as follows:

Cast Scrap

The maximum price that shall be paid for any kind of cast iron scrap, whether it is carwheels, machinery cast, railroad cast, or whatever cast it may be, and whether it is for consumption by a steel mill, cast iron foundry or otherwise, is \$30 per gross ton delivered to any consumer's plant.

Commission

It must be distinctly understood that under no circumstances can a dealer split or divide the commission allowed him by the mill with any other dealer or producer, and the highest price that any dealer may pay, whether the material comes from a producer or from another dealer, is the maximum price.

Steel Castings

A subscriber in the South writes: "Referring to the matter of Government prices on steel castings, you will note that the minimum and maximum prices for certain different classes of castings vary to a considerable extent, and I presume that this is figured on the weight of the castings. I would like very much to have some

information as to the schedule of weights upon which these prices are based, which I presume is from 1 to approximately 10 tons."

The schedule of prices recently published in THE IRON AGE was condensed, but the American Iron and Steel Institute has prepared detailed information soon to be published giving the different ranges of weights of steel castings to which the various intermediate prices apply. The enlarged pamphlet will be mailed by THE IRON AGE to any subscriber who so requests.

Strip Steel

A Michigan subscriber inquires: "There has been what we consider a most confusing situation brought about by the new Government base price by which you list hot rolled strip steel at a \$4.50 base. Will you kindly tell us just what a hot rolled strip may be? A company from which we buy steel has always sold us the steel as a hoop or band, but now tells us that contracts will be on a hot rolled strip basis of \$4.50, and that hot rolled strip may be either a hoop or a band, in spite of the fact that the Government has set a \$2.90 and a \$3.50 base on bands and hoops."

On the above inquiry the ruling is as follows:

Heavy rolled finished strip steel is supposed to be rolled much more accurately as regards both gage and finish than hoops. If the quality of hoop steel which you have purchased in the past is satisfactory for your purposes, no doubt the company from which you buy will be willing to sell you the same grade of material that you have had in the past on the hoop base, assuming that it is the base under which you have purchased in the past. There is no reason why a manufacturer of hoops should attempt to get a higher price for his product, unless he is delivering, by request of the purchaser, the higher quality of material which is supposed to be governed by the hot rolled finished strip steel base.

A Question of Deliveries

From a number of quarters has come this question, in substance: Where purchases are made and deliveries are stipulated for the first quarter of 1918, but in fact are not made until after April 1, would any change in price that became effective April 1 apply to such deliveries? The ruling is that if a new price is made it will apply to all deliveries after April 1, whether contracted for to be made before or after that date. In the same connection a question has been raised as to the date on which the new provision became effective, calling for a revision of prices to whatever prices were made effective April 1. The answer is that the provision applies to all purchases made after Dec. 28, the date of the President's last price proclamation.

Jobbers' Extras

Reference was made in THE IRON AGE recently to the question of jobbers' extras which has come up in connection with the carrying out of the Government schedule of prices on certain iron and steel products. The established custom in the Central West and in the greater part of the country, both on mill shipments and on shipments from store, has been to add to base prices what were formerly called "half extras" and now commonly known as mill or net extras. In certain Eastern markets the practice among jobbers has been to add three-quarter extras, particularly on sizes which are less active in stock and on which mill extras are highest. It has been argued that in view of the liberal allowance made to jobbers for handling, namely \$20 per ton on bars, shapes, plates and heavy sheets and \$25 per ton on black and galvanized sheets and shafting, the jobbing trade for the sake of uniformity should waive any departures from the practice of charging mill extras. For the most part the Eastern warehouses which formerly charged three-quarter extras have now come to mill extras. At some points, however, the jobbing trade has long been in the habit of adding full extras and still continues to do this. The practice is limited for the most part to districts more remote from centers of production and to the smaller trade. In general, the effect of the promulgation of Government prices and their interpretation by the committee of the American Iron and Steel Institute has been to make mill extras generally prevalent among jobbers who formerly charged three-quarter extras.

ESTABLISHED 1855

THE IRON AGE

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Published Every Thursday by the IRON AGE PUBLISHING CO., 239 West 39th Street, New York

W. H. Taylor, *Pres. and Treas.* Charles G. Phillips, *Vice-Pres.* Fritz J. Frank, *Secretary* M. C. Robbins, *Gen. Mgr.*

Owned by the United Publishers Corporation, 243 West 39th Street, New York. H. M. Swetland, *Pres.* Chas. G. Phillips, *Vice-Pres.* W. H. Taylor, *Treas.* A. C. Pearson, *Secy.*

BRANCH OFFICES—Chicago: Otis Bldg. Pittsburgh: Park Bldg. Boston: Equitable Bldg. Philadelphia: Real Estate

Trust Bldg. Cleveland: Guardian Bldg. Cincinnati: Mercantile Library Bldg. San Francisco: 320 Market Street.

Subscription Price: United States and Mexico, \$5.00 per year; single copy, 20 cents; to Canada, \$7.50 per year; to other foreign countries, \$10.00 per year.

Entered as second class matter, June 18, 1873, at the Post Office at New York, New York, under the Act of March 3, 1879.

Delayed Mails

The unprecedented railroad congestion of the past two weeks has seriously interfered with the delivery of THE IRON AGE. We especially regret the delay in putting into the hands of our readers the Annual Review Number, in districts served by the Pennsylvania Railroad. The unusual use of the Pennsylvania Railroad tunnel at New York for the movement of freight and the enormous accumulation of mail matter at the Pennsylvania terminal held up some shipments of this number more than two days. It is due this office to say that its work on this monumental issue was finished earlier than in any previous year and every arrangement had been made for rapid handling by printers and binders. Even with ordinary issues of THE IRON AGE there is still liability to delay because of the unparalleled difficulties of the railroad situation, but every effort is being made in this office to secure dispatch.

Failing Steel Production

The American Iron and Steel Institute reports the production of steel ingots in 1917 by producers who made 88.14 per cent of the output in 1916, as follows:

	Gross Tons
First half	18,900,820
Third quarter	9,034,591
October	3,351,935
November	3,166,257
December	2,733,722

Whether the total production was in exact ratio with the figures given above depends upon whether the 12 per cent who did not report are producers who increased their production in 1917 more or less than the average. On the assumption that the proportions were unchanged, the rate of ingot production (with no reference to steel castings) varied approximately as follows:

	Rate per annum Gross Tons
First half	43,000,000
Third quarter	42,000,000
October	45,500,000
November	43,150,000
December	37,200,000

The production of steel ingots in 1916 was 41,401,917 tons. New construction, as shown by the

annual summaries of THE IRON AGE, amounted to 4,205,000 tons of rated capacity in 1916 and 4,326,500 tons in 1917. Seeing that the 1916 new capacity was brought in chiefly towards the close of the year, the production in 1916 by the old capacity may be taken at a trifle more than 40,000,000 tons. The new construction of the two years totals 8,531,500 tons rated capacity, and taking 85 per cent of this as easily effective there would be 7,300,000 tons additional production available if the capacity could operate, making at least 47,500,000 tons altogether. Thus production in December was at a rate 10,000,000 tons a year short of what could have been produced under favorable conditions. Prospects are that production this month will be still lighter.

It is evident therefore that Washington should take an interest in the circumstances that prevent production before much attention is paid to the matter of prices. Possibly the addition of 10,000,000 tons a year to production would accomplish, under the operation of natural trade laws, all that is essential in the matter of prices.

The Spirit of Criticism

In these troublous war times the mental attitude of business men toward the Government and its numerous orders for the regulation of trade is a very important factor in the situation. Business men almost without exception are intensely patriotic and willing to do their utmost in helping to win the war, but many conditions have been and still are extremely exasperating and human nature has not yet reached such a stage of perfection that it does not show some impatience when tried as it is nowadays. Good judgment, patriotism and even self-interest alike dictate, however, the avoidance of the hostile attitude.

In almost every case in which what seems to be an unreasonable order is issued, there is not the reason for the gloomy foreboding which is frequently indulged in. Take, for example, recent orders in regard to contracts for coal and coke, to which strenuous objections have been made. The first order provides that contracts should not be made for the delivery or supply of coal or coke over a period longer than one year. This really

is in harmony with the general tendency of the trade to shorten the periods of contracts, and it is permitted that the period of one year may terminate at a date 18 months from that of the actual execution of the contract. Other provisions which give the Government power to seize coal or coke or require the abrogation of contracts certainly confer great power upon the Government, but the assumption of unusual power is absolutely necessary in time of war. If this power is arbitrarily used, the citizen has the right to protest, but until there is such arbitrary exercise of power he will do well to submit without complaint. The spirit of criticism which centers in Washington is likely to become contagious. Constructive criticism is needed, perhaps badly needed in some directions, but nothing will be gained and much will be lost, if business men fall into the habit of captious complaining and protesting. By so doing they will lose much valuable time which ought to be given to their country.

A Menace to National Unity

What unites the United States?

Physical union so far as commerce is concerned has come through the railroads, and State lines are no barriers. But important as are these great national highways for the interchange of commodities, far greater is the unity which comes of common ideals, common training and singleness of purpose. The people cannot do business together, think together or act together unless there is the bond of sympathy which comes only from a free interchange of ideas, an understanding of common problems and the dissemination of information on a common basis to all.

With all that has been done since the Civil War to unite the American people and to make opportunity equal in every part of the country, the nation is now brought face to face with a possible disruption of its established channels of information by the rider to the war revenue bill which has established the zone system of postal charges on newspapers and periodicals. This increases by 50 to 900 per cent the existing rate for carrying second-class matter and divides the country into eight zones with progressively higher rates, coming up in the last zone to a charge of 10 cents per pound or \$10 per hundredweight.

We are not arguing here the question of war taxes. The publishing interests of the country have said time and again that they are willing to bear their share of the new burdens imposed by the fearful costs of modern warfare. What readers and publishers protest against is that the Government's war necessities should be made an occasion of forcing upon the country a reactionary postal system which will check incalculably our advance toward national union. In 1846 the country had zone rates on letters as well as on periodicals and they operated to prevent the free interchange of thought between the different sections. In 1863 President Lincoln recommended and Congress enacted a law making one rate on letters to all parts of the United States. Carrying out this sound principle, an act of 1879 made a uniform rate on

all newspapers and periodicals. From that time to the present the whole tendency has been toward the removal of every natural or artificial barrier to free intercourse between the States.

Now, after more than a generation of progress toward unity and when the nation is entering the most critical period in its history, resort has been had to a rider on the war revenue bill to set up not one but eight Mason and Dixon's lines. Two postal commissions of recent years—the so-called Hughes Commission and the Penrose-Overstreet Commission—denounced the zone system of rates on periodicals as unwise, impracticable and undemocratic. Woodrow Wilson wrote as follows a few years ago concerning a pending bill similar to the one which has now become a law:

It must be that those who are proposing this change of [postal] rates do not comprehend the effect it would have. A tax upon the business [advertising] of the more widely circulated magazines and periodicals would be a tax upon their means of living and performing their functions.

They obtain their circulation by their direct appeal to the popular thought. Their circulation attracts advertisers. Their advertisements enable them to pay their writers and to enlarge their enterprise and influence.

This proposed new postal rate would be a direct tax, and a very serious one, upon the formation and expression of opinion—its more deliberate formation and expression, just at a time when opinion is concerning itself actively and effectively with the deepest problems of our politics and our social life.

To make such a change now, whatever its intentions in the minds of those who propose it, would be to *attack and embarrass the free processes of opinion*. Surely sober second thought will prevent any such mischievous blunder.

If such legislation was a "mischievous blunder" before the war, what shall be said of it now?

Senator Smoot has introduced a bill repealing the postal zone feature of the war revenue act and the movement which thus has taken form should be widely supported. The penalizing of readers in districts remote from publishing centers is unjust, and when its inevitable result is sectional thinking and sectional action it can only be viewed as a national menace.

Progress in Electric Steel

A leading automobile engineer recently stated that he prefers electric to crucible steel in the special alloys his company uses, and a prominent English authority has said: "There is no carbon or alloy steel and no kind of casting, heavy or small, that cannot be made better and more profitably in an electric furnace than by older methods."

These statements are a commentary on the great expansion of the electric steel industry in the United States and the world not only in 1917 but in the past three or four years. In the United States during 1917 there was an increase of nearly 100 furnaces or from 136 on Jan. 1, 1917, to 233 on Jan. 1, 1918, according to the annual review of this industry by THE IRON AGE in its issue of Jan. 3. The increase is in fact over 100, some furnaces having been contracted for but not made public. The expansion since Jan. 1, 1915, has been nearly six-fold. In the world during 1917 the growth is estimated at about 60 per cent, or from 471 furnaces on Jan. 1, 1917, to 733 on Jan. 1, 1918. Since Jan. 1, 1915, the expansion factor for all countries has been nearly three and one-half. These

are remarkable figures for an industry in its infancy only five years ago.

The development in the United States in the last two years, and particularly in 1917, has been marked by two important features. The installations in the majority of cases have been of larger furnaces. Of the 62 Heroult furnaces credited to 1917, only 12 have been of three tons or less, the remainder having been mostly six-ton units, with the exception of five installations of 10 to 25-ton furnaces. This is typical. The other feature has been the growth in electric steel plants of several units having large total capacity. There are now no less than seven steel companies in the United States each having from four to six electric furnaces, all producing special steels on a large scale, including the largest plant in the world. There are also two such large companies in Canada.

In the early days the industry in this country was confined almost entirely to steel castings. Its invasion of the alloy and tool steel field has been rapid and has had marked success. The days of crucible tool steel are not over, but it is true that there is hardly a crucible tool steel company in the United States to-day which has not either abandoned the crucible or has at least an electric steel furnace department.

The striking electric steel development outside of the United States has been in England. From 88 furnaces a year ago and only 16 three years ago, the increase has been to not less than 131 and probably nearer 150, as the data were not complete to Jan. 1, 1918. It is parallel with Great Britain's wonderful development in its entire steel industry under war conditions. That country also has the distinction of having more electric furnaces in one industrial center than any other. Sheffield, the crucible tool steel hub of the world, now has over 70 electric steel furnaces. That electric steel has overcome the conservatism of Sheffield, is no small guaranty of its quality as well as assurance of its continued progress.

Light Connellsville Coke Shipments

The shortage of Connellsville coke that has existed for more than a twelvemonth is put in statistical form by the annual summary of the *Connellsville Courier*, which reports that shipments from the Connellsville and lower Connellsville region in 1917 amounted to 17,806,181 tons, against 21,654,502 tons in 1916, a decrease of 3,848,321 tons, or 17.8 per cent. Connellsville coke production had not increased greatly for a decade, the 1906 shipments having been 19,999,326 tons, as reported by the *Courier*.

The December shipments were the poorest in 1917, being 1,203,901 tons, or at the rate of only 14,500,000 tons a year. During the first half of 1916 shipments were at the rate of 22,600,000 tons a year. If all the furnaces that used that coke had remained dependent upon the same source of supply, their pig iron production would have been decreased, theoretically, by about 7,500,000 tons a year. Practically the decrease would have been considerably greater, as with intermittent receipts furnaces had to bank and run slow, and irregular car supplies re-

duced the average quality of the coke, so that the coke consumption per ton of iron mounted and the actual curtailment would have been at the rate of 8,000,000 or 9,000,000 tons of pig iron a year.

As a matter of fact all the blast furnaces did not remain so dependent. There was a large increase in the available by-product coking capacity, through the completion of new ovens, and these new ovens drew considerable quantities of coal from the Connellsville region. The coal had to be mined just the same as if it had been mined for making Connellsville coke, and it had to be shipped just the same as the coke would otherwise have had to be shipped. The whole decrease in coke shipments, therefore, is not to be blamed upon the coke operators nor upon the railroads. A certain amount of activity has been withdrawn from the Connellsville coke statistics, which to that extent fail to disclose the whole situation.

While these Connellsville coke statistics seem to present an indictment of the trade as responsible for the country's shortage in pig iron production, some testimony may be presented in extenuation. The monthly blast furnace statistics of *THE IRON AGE*, presented a week ago, show that the country's production of coke and anthracite iron in December was at the rate of 92,997 tons a day, that being the lowest rate since August, 1915. The highest rate was 113,189 tons, in October, 1916.

It is impossible to compile statistics of pig iron production by the furnaces that use Connellsville coke direct, or have supplanted its use by by-product coke made with Connellsville or other coal. A suggestion as to the circumstances of the furnaces involved, however, may be secured by taking from our monthly reports the production of pig iron in the following districts: Pittsburgh, Western Pennsylvania, Mahoning and Shenango Valleys, Central and Northern Ohio and New York. There is relatively little Connellsville coke used outside these districts. Their production in October, 1916, was 64,600 tons of pig iron a day, and last month it was 51,343 tons a day, a decrease of 20.5 per cent. The production outside these districts decreased from 48,589 tons to 41,652 tons, or by 14.3 per cent. The divergence between these two decreases is not so great after all. These outside districts are in large measure self-contained, not requiring a movement of the coke over any distance.

Foreign Trade Convention Postponed

The decision of the executive committee of the National Foreign Trade Council to postpone the fifth National Foreign Trade convention to be held at Cincinnati from early in February to April 18, 19 and 20 is commendable. The suggestion made in some quarters last year that all conventions be abandoned has been very properly disregarded to a considerable extent and much good has come out of the discussions at some of these conventions. But in view of the severe railroad congestion, which is likely to last for at least several weeks, and of the fact that so many of the 60 members of the National Foreign Trade Council are devoting their entire time to war activities, the action in postponing the Cincinnati convention will be generally indorsed.

URGENT CALL FOR TOOLS

A Government Appeal to Readers of
"The Iron Age"

The Machine Tool Section of the Finished Products Division, War Industries Board, at Washington, asks the co-operation of the readers of THE IRON AGE in an emergency which now confronts a branch of the ordnance department. A very large number of machine tools, probably the greatest number that has been called for at one time, will be needed in the next two months, and these tools cannot be obtained through the usual channels of trade. The machine tool makers of the country have been appealed to and it is found impossible for them to meet this sudden demand. As many as possible of the machines should be supplied within 30 days.

Metal-working concerns having tools which are not being operated under present conditions or are only operated to partial capacity are asked to indicate what machines in the list below they have which they can dispose of at once to help out in ordnance work. There will be direct dealing in every case and no middleman will be a party to the negotiation. The list includes the following:

500 planers, of which 320 are 36 x 36 in. by 14 ft.; more than 100 are 48 x 48 in. by 20 ft.; a considerable number 60 x 60 in. by 20 ft.

A large number of Nos. 4 and 5 horizontal milling machines; a large number of No. 4 vertical milling machines.

Several hundred 30-in. by 20-ft. engine lathes; also 36-in., 42-in. and 48-in. machines of the same type.

Ten 10-ft. vertical boring machines; also several 7-ft. and 5-ft. machines of the same type.

Over 100 4-in. and 6-in. floor type horizontal boring, milling and drilling machines.

Anyone having machine tools of the above descriptions which are not fully engaged or are not in essential work and which could be loaned, rented or sold to the Government is asked to communicate at once with George E. Merryweather, chief of the Machine Tool Section, Finished Products Division, stating just what machines can be supplied so that a survey may quickly be made of whatever can be obtained.

The urgency of the situation is great and it is hoped the responses to this appeal will be prompt. Without heavy guns the American army can be of little service, and unless such guns are supplied the mortality will increase enormously. The call is one which makes a strong appeal to patriotism, and THE IRON AGE is confident its readers will appreciate the necessity and the unusual opportunity it affords to be of signal service.

To help the trade journal reading habit, the Newark Free Public Library and the Newark Museum Association, Newark, N. J., are holding a three-weeks exhibition of trade journals at the library building. The museum makes a specialty of industry and one object of the exhibition is to lead more manufacturers to have their products used for industrial education in the schools.

At the annual meeting of the board of directors of the Amalgamated Machinery Corporation, 72 West Adams Street, Chicago, the following officers were elected: president, T. K. Webster; vice-president, L. I. Yeomans; secretary, Walter A. Strong; treasurer, C. M. Moderwell.

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For Government Purchase of Steel Output

Varying Prices to Producers with Resale at Flat Prices—Similar Plan Discussed for Coal Trade

WASHINGTON, Jan. 15.—The interesting suggestion has been made to Congress that in place of a schedule of flat prices on all iron and steel products regardless of the producers' costs, a system should be employed under which producers would be permitted to charge prices equivalent to cost plus a "reasonable" profit. This profit would approximate 10 per cent in the case of large producers and might run as high as 15 or 20 per cent in the case of small concerns. The suggestion has been put forward in a statement to the Senate Committee on Manufactures by Francis S. Peabody, formerly chairman of the coal production committee and now in charge of the Division of Explosives in the Bureau of Mines. Incidentally, Mr. Peabody's testimony developed another interesting fact, namely, that Commissioner Colver of the Federal Trade Commission, as well as Commissioner Murdock, favors the pooling plan of price fixing for iron and steel, coal, etc., recently advocated by Mr. Murdock in a formal statement, under which the Government would take over the entire output of the industry at varying prices representing reasonable profits to the producers and then sell the product to consumers at flat prices based on the average cost to the Government.

Government Coal Price Higher Than Contract

In his testimony before the Senate committee Mr. Peabody said that in operating his own coal mines he had recently adopted the plan of contracting for the sale of his output in large quantities at cost plus a profit which ranged from 10 cents per ton to 10 per cent, the latter rate being equivalent to 15 or 16 cents per ton. Outside of contracts, Mr. Peabody said, he obtained the Government price, which was higher than any of his contract prices. The Government price, he stated frankly, was a high price for his mines, which contained large, thick veins of coal, but there were other mines in Illinois in districts where he was operating which could not make a profit on the Government's price. These were old mines with thin veins and having long hauls to market.

"I believe prices are high enough in many districts," said Mr. Peabody. "In certain districts they should be readjusted up or down. But what is most necessary for the coal industry and those depending upon it is some definite statement as to the policy of the Government, so that those who want to make investments in new coal mines or in putting in machinery in old mines may have some assurance. At the present moment a ruling of the fuel administration is in force to the effect that all prices and contracts are subject to change without notice. This leaves the entire industry in confusion and is an absolute death blow to any investment project. I had a requisition laid on my desk a few days ago for \$580,000 for new electric locomotives in my mines. Now, these locomotives are \$300,000 higher to-day than they were eighteen months ago, and it is a great risk to make such a purchase, not knowing what the future policy of the Government will be.

"There are some 18,000 coal mines. No man can know the cost in every mine. If you gentlemen or the President had determined what a reasonable profit should be, 10 per cent or 15 per cent, or any other reasonable figure, I believe we would have come to

normal conditions by this time with our production greatly increased."

Prices Fixed by Highest Costs

At this point Senator Reed declared that the Government's policy appeared to be to find out the poorest property and the most inefficient man and then to fix the price of the entire output of the industry at a figure that would enable him to make a reasonable profit. Mr. Peabody assented, adding: "I do think that the Government through the President or some other agency should say to the coal man, the coke man, the pig-iron man and the steel man that they must limit their profits to 10 or 15 or 20 per cent, instead of seeking to make a flat price for the entire output that would take care of the man whose cost of production is highest."

Referring to current high cost of materials and equipment, Mr. Peabody said that electric locomotives, which two years ago cost \$1,800 each, were to-day over \$5,000 and promised to be \$6,000 at an early date. Copper wire, when coal was selling for \$1 per ton, was 16c. per lb., while to-day it is 38c. Powder, of which his mines use 500,000 kegs, is normally \$1.10, but to-day is \$1.90. He was in the habit of purchasing about 2000 tons of rails a year, but they have gone up from \$22 to \$80.

Increased "Coal" Output Is Dirt

The increase in the cost of labor, Mr. Peabody said, had been a very important factor, especially in those mines which wash their coal. In this connection he confirmed the statement recently made by Director Van H. Manning of the Bureau of Mines to the effect that the amount of dirt in the coal marketed in 1917 would more than offset the reported increase in production. The impurities removed in washing coal amounted to about 11 per cent of the tonnage, but very few producers washed their product, as it required expensive machinery and cost 30c. a ton. He emphasized the fact that the Government does not recognize any difference in the value between clean and dirty coal, and that the mines which spent 30c. for washing their coals were not permitted to charge any more than those which supplied coals with 10 to 11 per cent of dirt.

Questions by the committee brought out the fact that Mr. Peabody had suggested to the Fuel Administration the adoption of a zone plan for coal distribution designed to eliminate cross-hauls and providing that no coal should be sold outside the zone of its production except under a Federal license which might be issued in certain cases to permit certain classes of coal to be supplied to consumers having special requirements. Such a plan, he said, would add greatly to the efficiency of mine labor and of railroad equipment for the handling of coal and coke and would probably increase the present production of coal at least 20 per cent. The mines of the United States to-day are not working more than 65 per cent of their capacity. If they could work 100 per cent, he said, the output would approximate 700,000,000 tons.

An Average Price to the Consumer

At this point Senator Vardaman put this question to the witness:

"I want to ask you if you have given any thought to a project under which the United States would take all the coal from all the mines, paying more to the mines having higher cost of production than to those having low cost and then fix an average price to the consumer? Do you not think that by such a system cheaper coal could be furnished to the ultimate consumer?"

"I have thought most seriously about it," replied Mr. Peabody. "Mr. Colver of the Federal Trade Commission and I argued that point almost continuously for two months. He had in mind a pooling plan of buying all the coal at certain fixed prices and distributing it through the Government at an average price. He did not provide, however, for the period when this pool would overflow, that is to say, when the production should exhaust the demand. What would the Government do with that coal then? They could not store it and they could not sell it. Who would then shut down the high cost man or the low cost man?"

"That's a problem worth considering," commented Senator Vardaman.

"So it seemed to me when I finished discussing it with Mr. Colver," said Mr. Peabody.

"What did he say?"

"He said: 'There you are.'"

"Well," said Senator Vardaman, "there you were."

Mr. Peabody added that Mr. Colver's plan was to put all the coal in one pool, irrespective of the quality, and sell it at a flat price.

A Bearing on Iron and Steel Prices

The Senate Committee is nearing the end of its investigation of the Governmental agencies entrusted with execution of the Lever food, feed and fuel law and will soon begin the preparation of its report, which promises to contain some highly important recommendations, judging by the views of prominent members of the committee very forcibly expressed during the hearings. It is probable that the committee will make some pertinent suggestions having a bearing on the methods to be pursued by the War Industries Board in the revision of iron and steel prices, which, it is assumed, will be subject to more or less readjustment before the expiration, on March 31 next, of the extended September schedule.

W. L. C.

Germany and Briey Iron Ore

Peter Klöckner, a leading German steelmaker, discussing the future of the German steel industry, regards it as a matter of life and death for the German iron industry that the French iron-ore districts of Briey and Longwy be annexed. Another German iron magnate, Hilger, takes a different view. At the recent annual meeting of the Laurahütte, of which he is the managing director, he admitted that the Briey minette ore is wanted by German works, but he pointed out that France will be under economic necessity to continue to supply this ore to Germany in exchange for German coal and coke. He thought that it would be possible for the German consumers to assure themselves of supplies of Briey ore by contracts extending over several years, and he added his testimony to the good faith of the French in all matters relating to contracts. The Berliner Tageblatt, commenting upon Director Hilger's views, is not optimistic regarding the resumption of business relations between France and Germany, but admits that under pressure of economic interdependence, an agreement on the coke and ore question is sure to be reached, possibly in the peace treaty.

The annual salesmen's banquet of the Brown-Wales Co., Boston, was held at the Boston City Club, Friday evening, Jan. 11, about 31 being present. An address was made by the president, W. Q. Wales. Later, all enjoyed a theater party.

Foreign Trade Convention Date Changed

The Executive Committee of the National Foreign Trade Council announces that "owing to the railroad congestion and the desire of the Council to co-operate with the Government in the relief of the situation due to the war," the dates of the fifth National Foreign Trade Convention to be held at Cincinnati have been changed from Feb. 7, 8 and 9 to April 18, 19 and 20, 1918.

The Cincinnati committee, headed by Robert S. Alter, is heartily in favor of the change, and is making arrangements to conform thereto.

No change in the theme of the convention or in its plan and scope is contemplated. The three days of the convention will be devoted to the obligation upon the foreign trade enterprise of the United States in helping to win the war, as well as to discussion of the war winning value of foreign trade in sustaining credit through the maintenance of the gold reserve, and in insuring supplies of necessary raw materials for war use. Consideration will also be given to the demands and problems of the renewed competition after the war. Registration of delegates already made indicates that the April convention will be the most successful ever held by the National Foreign Trade Council.

Nearly all of the 60 members of the National Foreign Trade Council are devoting the whole of their time to work in connection with the war. Fifteen or twenty are engaged chiefly in Washington, and a number, like Edward N. Hurley, chairman of the United States Shipping Board and president of the Emergency Fleet Corporation, have taken up their residences at the national capital.

Merchants and manufacturers who are desirous of receiving invitations to attend the convention at Cincinnati are requested to send their names and addresses to O. K. Davis, secretary National Foreign Trade Council, 1 Hanover Square, New York.

Buys Duquesne Iron & Metal Co.

PITTSBURGH, Jan. 16 (By Wire).—The Stalnaker Steel Co., Farmer's Bank Building, Pittsburgh, dealer in iron and steel scrap of all kinds, has bought the entire business of the Duquesne Iron & Metal Co., which has maintained for some years a scrap yard on the North Side, Pittsburgh, and which is equipped with modern machinery for handling 50,000 tons of scrap per year. J. B. Stalnaker, formerly president of the Duquesne Iron & Metal Co., is now connected with the Stalnaker Steel Co. in the capacity of second vice-president, and Robert Cargo, formerly with the Duquesne company, is also now with the Stalnaker Steel Co.

Remington Continues to Decrease Force

The Remington Bridgeport Works, the rifle plant of the Remington Arms Union Metallic Cartridge Co., Bridgeport, Conn., has discharged another group of men, numbering about 1500. This makes about 4000 men released in a week. It is reported that many more, perhaps 8000 in all, will have to be let go before the company is prepared to take up on a large scale the manufacture of the heavy type of Browning machine gun. This result of the cessation of work on the Russian rifle contract is causing concern to other Bridgeport manufacturers, as the discharge of thousands of men without warning by this prominent company may hurt the name of the city. The other industries are absorbing the former Remington employees as fast as possible, but are able to take care of only a small minority. Later the Bullard Engineering Works and the Liberty Ordnance Co. will probably be in a position to take on about 2000 men, but neither company can now do so, as neither plant is ready for the increase in output that will follow the complete equipment of the plants. The officials of the Remington plant are quoted as stating that they will employ a full force again in the spring when they are tooled up for the work on the Browning gun.

Iron and Steel Markets

SHUTDOWNS MORE SERIOUS

Proposal to Take Merchant Furnace Coke for Steel Companies

Priority Questions More Pressing—Iron Ore Sales at 1917 Prices

Heavy snows and intense cold have made the breakdown of railroad service more complete in the past few days, and in the shutting down of operations the week has been probably the worst the steel industry has known. It is difficult to measure the loss of output. In the Chicago district the total pig-iron production for the past five days has been 30 to 40 per cent of normal, with steel production somewhat more. Pittsburgh, Youngstown and Cleveland have probably had a 60 to 70 per cent operation in steel. Eastern blast furnaces and steel plants have suffered severely from the blockades in other sections, which cut off coal and coke.

The complete shutdowns of some plants have been a matter of but two or three days, and this phase may pass quickly, but the piling up of freight will hamper mills for weeks; and, since mines cannot ship coal unless cars come back as empties, the fuel shortage will cripple the industry indefinitely.

A grave situation opens before certain merchant furnaces in the threatened diversion of their coke supply to steel company furnaces. Eastern pig-iron producers hastened to Washington this week to protest against an order that will take 100,000 tons of coke a month from them and give it to two Eastern steel companies whose output of plates and ordnance is of the highest importance to the Government. The order was not made effective Jan. 16, as planned, but the postponement is probably temporary. It is a case of putting one Government need before another, as much of the merchant pig iron that would be cut off has been going into Government contract work.

The American Iron and Steel Institute's steel committee has just appointed a sub-committee to co-operate with the director general of railroads in improving traffic conditions as they affect iron and steel works. This committee's immediate problem will be to move the huge accumulations of finished material that have brought many rolling mills to a standstill. Hundreds of thousands of tons of export steel are involved, and the ships to carry much of it wait on bunker coal.

The sharp cutting down of steel output points to a tighter drawing of the lines against less essential industries in the distribution of mill products. More labor would thus be turned upon imperative Government work.

The uncertainties of Government prices are a brake upon market activity in every form of finished steel. Some lower prices have been quoted for export—3.75c., for example, on steel bars and

shapes, and the domestic price of 3.50c., Pittsburgh, for bar iron.

On steel rails some mills are four months behind their contract deliveries, and the leading maker is sold on both standard section and light rails from Pittsburgh district plants for the entire year. Rail prices have been carried well beyond the basis of \$38 for Bessemer and \$40 for open hearth at which contracts for 1918 were closed after the \$33 and \$35 prices for such delivery were withdrawn. More recent sales have been made at \$55 for Bessemer and \$57 for open hearth; but in other cases mills have obtained \$65 for Bessemer and \$68 to \$70 for open hearth, these prices being bid also on the 85,000 tons of rails wanted by the Canadian Pacific Railroad.

While Government priority for rail, car and locomotive steel is fully expected, no definite program for such buying is announced, though rail requirements for 1918 have been put as high as \$4,000,000 tons. The diversion to Italy of many cars included in the Russian contract is a probability.

Pig iron is less affected than steel products by doubt as to future prices, and Cleveland has been the chief center of activity. One interest there has made sales of 34,000 tons in the past week. An Ohio steel-maker has bought 20,000 tons of basic iron for the last half and another has inquired for 15,000 tons for the first half. The new Erie, Pa., steel plant is now covered for 3000 tons a month through the year, deliveries beginning with March. A 15,000-ton sale of basic for the first half has been made at Philadelphia, and 16,500 tons is wanted there by a steel-casting company. An 8000-ton inquiry for foundry irons has come from the Navy.

Sales of Lake Superior iron ore are now being freely made at the 1917 prices, subject to any revision the Government may make April 1, indicating a change in the attitude of some ore firms who at first were willing only to make reservations. Representations to the War Industries Board on behalf of the ore producers strongly urge an advance in prices April 1, on the ground of higher costs.

Pittsburgh

PITTSBURGH, Jan. 15—(By Wire.)

If any change has taken place, operating conditions among the blast furnaces, steel mills and other manufacturing plants in the Pittsburgh, Youngstown and Wheeling districts this week are worse than last week, and, as stated before, the steel business is at the mercy of the weather, which has been as bad as it could possibly be for more than a month. Early last week, through the united efforts of the railroads, some progress was made in clearing the freight congestion that has been the worst ever known, but on Saturday and Sunday last, another cold wave came, with temperature from 10 to 15 degrees below zero, and all the good work done in the early part of the week was lost. The cold was so intense that the Pennsylvania Railroad had to annul a number of passenger trains East and West, while to move freight was almost a physical impossibility. The weather has moderated to some extent, but a heavy snow came Tuesday, and the railroads are battling against extreme serious conditions. Eastern and Western passenger trains are arriving

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics

At date, one week, one month, and one year previous

For Early Delivery

Pig Iron, Per Gross Ton:	Jan. 16, 1918	Jan. 9, 1918	Dec. 19, 1917	Jan. 17, 1917
No. 2 X, Philadelphia...	\$34.25	\$34.25	\$34.25	\$30.00
No. 2, Valley furnace...	33.00	33.00	33.00	31.00
No. 2 Southern, Cin'ti...	35.90	35.90	35.90	25.90
No. 2, Birmingham, Ala.	33.00	33.00	33.00	23.00
No. 2, furnace, Chicago*	33.00	33.00	33.00	30.00
Basic, del'd, eastern Pa.	33.75	33.75	33.75	30.00
Basic, Valley furnace...	33.00	33.00	33.00	30.00
Bessemer, Pittsburgh...	37.25	37.25	37.25	35.95
Malleable Bess., Ch'go*	32.50	33.50	33.50	31.00
Gray forge, Pittsburgh...	32.75	32.75	32.75	29.95
L. S. charcoal, Chicago...	37.50	37.50	37.50	31.75

Rails, Billets, etc., Per Gross Ton:	Jan. 16, 1918	Jan. 9, 1918	Dec. 19, 1917	Jan. 17, 1917
Bess. rails, heavy, at mill.	\$55.00			\$38.00
O.-h rails, heavy, at mill.	57.00			40.00
Bess. billets, Pittsburgh...	47.50	47.50	47.50	65.00
O.-h. billets, Pittsburgh...	47.50	47.50	47.50	65.00
O.-h. sheet bars, P'gh...	51.00	51.00	51.00	65.00
Forging billets, base, P'gh	60.00	60.00	60.00	80.00
O.-h. billets, Phila.....	50.50	50.50	50.50	60.00
Wire rods, Pittsburgh...	57.00	57.00	57.00	75.00

Finished Iron and Steel,	Per Lb. to Large Buyers:	Cents.	Cents.	Cents.	Cents.
Iron bars, Philadelphia...	3.685	3.685	3.685	3.159	
Iron bars, Pittsburgh....	3.50	3.50	3.50	3.25	
Iron bars, Chicago.....	3.50	3.50	3.50	3.00	
Steel bars, Pittsburgh...	2.90	2.90	2.90	3.25	
Steel bars, New York....	3.095	3.095	3.095	3.419	
Tank plates, Pittsburgh...	3.25	3.25	3.25	4.50	
Tank plates, New York...	3.445	3.445	3.445	4.669	
Beams, etc., Pittsburgh...	3.00	3.00	3.00	3.25	
Beams, etc., New York...	3.195	3.195	3.195	3.419	
Skelp, grooved steel, P'gh	2.90	2.90	2.90	2.85	
Skelp, sheared steel, P'gh	3.25	3.25	3.25	3.00	
Steel hoops, Pittsburgh...	3.50	3.50	3.50	3.25	

*The average switching charge for delivery to foundries in the Chicago district is 50c. per ton.

Sheets, Nails and Wire,	Jan. 16, 1918	Jan. 9, 1918	Dec. 19, 1917	Jan. 17, 1917
Per Lb. to Large Buyers:	Cents.	Cents.	Cents.	Cents.
Sheets, black, No. 28, P'gh	5.00	5.00	5.00	4.50
Sheets, galv., No. 28, P'gh	6.25	6.25	6.25	6.25
Wire nails, Pittsburgh...	3.50	3.50	3.50	3.00
Cut nails, Pittsburgh...	4.00	4.00	4.50	2.95
Fence wire, base, P'gh...	3.25	3.25	3.25	2.95
Barb wire, galv., P'gh...	4.35	4.35	4.35	3.85

Old Material, Per Gross Ton:	Jan. 16, 1918	Jan. 9, 1918	Dec. 19, 1917	Jan. 17, 1917
Carwheels, Chicago....	\$30.00	\$30.00	\$31.50	\$19.00
Carwheels, Philadelphia...	30.00	30.00	34.00	21.50
Heavy steel scrap, P'gh...	30.00	30.00	30.00	22.00
Heavy steel scrap, Phila.	30.00	30.00	28.00	22.00
Heavy steel scrap, Ch'go.	30.00	30.00	28.50	21.00
No. 1 cast, Pittsburgh...	30.00	30.00	30.00	19.50
No. 1 cast, Philadelphia...	30.00	30.00	31.00	20.00
No. 1 cast, Ch'go (net ton)	26.00	26.00	24.50	15.50
No. 1 RR. wrot, Phila....	35.00	35.00	35.00	27.00
No. 1 RR. wrot, Ch'go (net)	31.25	31.25	31.25	23.50

Coke, Connellsville, Per Net Ton at Oven:	Jan. 16, 1918	Jan. 9, 1918	Dec. 19, 1917	Jan. 17, 1917
Furnace coke, prompt...	\$6.00	\$6.00	\$6.00	\$8.50
Furnace coke, future....	6.00	6.00	6.00	6.00
Foundry coke, prompt...	7.00	7.00	7.00	10.00
Foundry coke, future....	7.00	7.00	7.00	7.00

Metals,	Per Lb. to Large Buyers:	Cents.	Cents.	Cents.	Cents.
Lake copper, New York...	23.50	23.50	23.50	29.00	
Electrolytic copper, N. Y.	23.50	23.50	23.50	29.00	
Spelter, St. Louis.....	7.75	7.62 1/2	7.50	9.75	
Spelter, New York.....	8.00	7.87 1/2	7.75	10.00	
Lead, St. Louis.....	6.85	6.55	6.25	7.50	
Lead, New York.....	7.00	6.70	6.40	7.65	
Tin, New York.....	85.00	85.00	85.50	44.25	
Antimony (Asiatic), N. Y.	14.00	14.50	15.00	14.25	
Tin plate, 100-lb. box, P'gh	\$7.75	\$7.75	\$7.75	\$7.00	

here eight to ten hours late, and the movement of freight is even slower. Embargoes exist in every direction and finished steel products are piling up in the warehouses of the mills at an unheard-of rate. Unless there is soon some relief a number of large plants will have to close until products ready for shipment have been gotten out of the way. One large plant has close to 2000 cars loaded in its own yards, but cannot get motive power to move them. This week the Carnegie Steel Co. still has 15 or more blast furnaces banked for lack of coke; the National Tube Co. has three out of five banked at Lorain, and one McKeesport stack is idle, while in general manufacturing plants are not operating to more than 50 per cent of capacity. Some concerns more favorably located as regards coal supply are able to run nearly full, but their finished material is piling up, as they are unable to make shipments because of embargoes and lack of cars. The amount of new business being placed in steel products is very small. The mills are more concerned in trying to move material already made than they are in going after new orders. Consumers are not getting deliveries on old orders, and know that nothing is to be gained in trying to place new business, as the mills do not want it. The fact that prices may be revised to a lower basis after March 31 is also a great hindrance to the placing of new business. Mills do not want to sell for a delivery and not know what prices they will get, and buyers do not care to place orders at prices that may be revised before they get deliveries of the goods. The Government still is taking close to 75 per cent of the output on open-hearth steel, likely larger percentage of plates, and is also a steady buyer of sheets, pipe and tubes, shafting and other lighter finished products. The trade here is watching the situation closely, and believes that a move toward more complete control of the steel business by the Government is not an idle dream, but may be a reality before March 31 comes. The alacrity with which the Government reaffirmed prices about Jan. 1 is taken by some here to mean that plans are possibly under consideration at Washington looking to Government purchase and handling of steel out-

put for at least the period of the war. On the other hand, is the opinion that such action by the Government is not contemplated, since it is generally believed it would be a serious mistake. The fact is pointed out that since war was declared against Germany on April 6 last year, the steel mills and, indeed, all manufacturing plants, have responded to the fullest extent to the heavy calls of the Government for steel materials of all kinds. Men high in the steel trade have given their services and are still giving them freely to the Government. All direct and indirect Government orders are being filled by the mills promptly and shipped out just as quickly as railroad conditions will permit. Even if the Government had control of the steel trade it is very doubtful if it would get any better or as good service in deliveries as it has had in the past nine months and will continue to have as long as present owners are in control of their steel plants. The trade here is watching closely for developments in this very important matter. Prices on raw and finished materials, as fixed by the Government from time to time, are absolutely firm. There would be no trouble in getting much higher prices were it not for the Government's restrictions.

Pig Iron.—The local situation in the pig-iron trade is lifeless, as far as new sales go. Occasionally a few hundred tons of pig iron are sold for delivery in this quarter, but the quantity involved in these sales is very small. In the Pittsburgh, Youngstown, Wheeling and other districts probably 40 to 50 blast furnaces are banked for lack of coke. The output of those in blast is much less than usual, owing partly to the bad quality of coke being delivered, and the output of pig iron in these districts this month will show a heavy falling off as compared with December, unless operating conditions and the supply of coke very quickly get better, and this is not very likely. Steel works that have blast furnace connections are combing other markets trying to find pig iron, but with very little result. One local maker sold 1000 tons of Bessemer iron last week for this and next month's delivery at the regular price of \$36.30, Valley furnace. Concerns are borrowing pig iron from each other and would willingly pay the freight rates from any iron pro-

ducing center if they could find furnaces that would sell them. Some small lots of foundry iron are being sold for this quarter delivery at the regular price of \$33 for No. 2 at furnace. No large inquiry for pig iron is out, as consumers realize they cannot get the iron, and might as well stay out of the market.

We quote as follows: Basic pig iron, \$33; Bessemer, \$36.30; gray forge, \$32; No. 2 foundry, \$33; No. 3 foundry, \$32.50, and malleable Bessemer, \$33.50, all per gross ton at Valley furnace, the freight rate for delivery in the Cleveland and Pittsburgh districts being 95c. per ton.

Billets and Sheet Bars.—Recently a leading steel interest outside the Pittsburgh district sold 8000 tons of Bessemer sheet bars to a large consumer. A small part of this contract has been shipped, and the maker has probably several thousand tons of the bars rolled, but cannot get cars and they are piled up at the mill. Very few new sales of billets or sheet bars are being made, the steel mills hunting steel rather than trying to sell it. The Carnegie Steel Co. has not sold any billets or sheet bars on new orders for more than a year, and would be glad to buy steel to apply on its contracts, if it could be had. Steel mills that are supplying the regular trade with billets and bars are largely substituting Bessemer for open hearth steel, desiring to conserve the very last pound of open hearth steel they can for the Government. Several local dealers who formerly handled many thousands of tons of billets and sheet bars have been completely put out of business since Government prices were established, and are doing nothing. They cannot pay Government prices and sell at the same figures; so they are better off without the business. Output of semi-finished steel in the Pittsburgh district for the past several weeks with several of the larger mills has been little over 50 per cent of capacity.

We quote 4 x 4 in. soft Bessemer and open-hearth billets at \$47.50, sheet bars \$51, forging ingots \$73, and forging billets \$60 base, all f.o.b. at mill, Pittsburgh or Youngstown.

Ferroalloys.—Very little new business is being done in ferroalloys of any kind, consumers being well covered over this quarter and some into second quarter. New inquiry for ferromanganese is a little heavier, and several sales amounting to 600 to 700 tons for delivery in this quarter have been made at \$250, delivered. Makers of ferroalloys will not sell beyond this quarter on account of fear that prices on alloys which have been fixed may be revised to a lower basis when March 31 comes. We quote 80 per cent domestic ferromanganese firm at \$250, delivered, 18 to 22 per cent spiegeleisen at \$60 to \$65, delivered, and 50 per cent ferrosilicon at \$165 to \$170, delivered, for prompt shipment. We note a sale of 75 tons of the latter, equal deliveries in this quarter, at the lower price.

We now quote 9 per cent Bessemer ferrosilicon at \$54, 10 per cent \$55, 11 per cent \$58.30, 12 per cent \$61.60. We quote 6 per cent silvery iron \$40, 7 per cent \$42, 8 per cent \$44.50, 9 per cent \$47, 10 per cent \$50. Three dollars per gross ton advance for each 1 per cent silicon for 11 per cent and over. All the above prices are f.o.b. maker's furnace, Jackson or New Straitsville, Ohio, these furnaces having a uniform freight rate of \$2 per gross ton, for delivery in the Pittsburgh district.

Structural Material.—New non-war work being placed is very light, and it is evident that many large jobs have been put off indefinitely because of the high prices of material and labor and the slow delivery. An instance is the proposed new Union Trust Co. building, on which bids were opened last week, but prices of materials were so high and deliveries promised so unsatisfactory that this job, which would have taken about 2500 tons, has gone over for a year at least. The McClintic-Marshall Co. has taken 300 tons of bridge work for the Lehigh Valley and a similar quantity for the Pennsylvania Railroad. The American Bridge Co. has taken about 1200 tons for a new paper mill in West Virginia. We quote beams and channels up to 15-in. at 3c. at mill, this being the Government price. The two local mills rolling structural shapes could not make delivery on new orders before second half of this year.

Plates.—The situation in plates shows no material change. Some few mills have limited amounts of

plates of odd sizes for prompt shipment, but on regular sizes prompt delivery is very hard to obtain. As yet nothing has been heard here in regard to the purchase by the Government of 9000 to 10,000 cars for Italy. This may not be made for the reason that some, if not all, of the cars on the contract for about 10,000 for Russia, placed several months ago, may be diverted to the Italian Government. The Baltimore & Ohio Railroad has an inquiry out for 1000 steel hoppers and the same number of flat and steel gondola cars. It is said this road is also in the market for 30,000 car wheels. Local car builders will pretty well clean up their present car orders at the end of this quarter, but are running very largely on Government work, which it will take many months to complete. We quote ¼-in. and heavier sheared plates at 3.25c., f.o.b. mill Pittsburgh.

Steel Rails.—The Government did not fix any prices on standard sections, and the market on these is irregular. However, some time ago the Government fixed a price of \$55 on Bessemer standard sections and \$57 on open hearth as prices it would pay on any of its own purchases. To railroads and other users of standard sections, except the Government, mills are quoting higher prices. One mill has made several sales of Bessemer standard sections at about \$65 at mill, and is quoting \$68 to \$70 for open hearth. The Carnegie Steel Co. is not quoting on either standard sections or light rails, being filled up tight for all this year on both, and will likely carry over a large tonnage into next year. The Cambria Steel Co. is quoting in a limited way on both standard sections and light rails for fairly prompt delivery. We quote Bessemer standard sections at about \$65 and open hearth at \$68 to \$70 per ton at mill. The Government price on light rails is \$3 per 100 lb. for sections from 25 lb. to 45 lb. at mill.

Sheets.—The output of sheets is being steadily reduced, due to the shortage in steel and also to the fact that mills having sheet and tin plate capacity are diverting as much steel as possible to the rolling of tin plate. The question has been raised whether, if this continues, a shortage in the supply in sheets may not develop before long. This week the American Sheet & Tin Plate Co. is operating to only about 60 per cent of sheet mill capacity, and some makers are running at a less rate. The Government is still placing fair sized orders for black and galvanized sheets, a good part of the tonnage involved being for shipment to France. Prices on sheets as fixed by the Government are very firm and are given on page 231.

Tin Plate.—Operating conditions in the tin plate trade are very bad. All the tin mills are short of steel, and hundreds of thousands of boxes, made up and ready for shipment, are piled in their warehouses, awaiting cars for shipment. Unless railroad conditions soon get better, some tin mills will have to close, as their storage facilities have about reached the limit. It is said one leading maker has over 1,000,000 boxes of tin plate ready to ship, but lying in its warehouses. Owing to embargoes, the railroads are refusing to accept tin plate for shipment, and efforts are now being made to have the Government issue priority orders for this product. The export demand is heavy, but most mills are not quoting, knowing they could not get cars, and bottoms are also very difficult to obtain. Stock items are scarce, and some mills have practically none to offer. We quote tin plate in large and small lots at \$7.75 per base box at mill, rolled from Bessemer or open-hearth stock. Prices onterne plate are given on page 231.

Iron and Steel Bars.—Reports are that the Government recently distributed among mills in this district orders for 50,000 to 60,000 tons of steel rounds. The new demand for iron and steel bars is fairly active, but most large consumers are covered over this quarter and through first half of this year. Specifications against contracts are only fairly heavy. The output of iron and steel bars is much lighter than usual, owing to scarcity of raw material, and shipments are very bad, due to the railroad congestion. We quote steel

bars, rolled from old steel rails, at 3c.; from steel billets, 2.90c., and refined iron bars, 3.50c., f.o.b. mill, Pittsburgh.

Rods.—Makers continue to report an active domestic demand for rods, and export inquiry is also heavy. As a rule, makers are not quoting on export delivery, owing to the embargo East on the Pennsylvania Railroad, but are quoting for shipment to the Orient, as delivery can be made via the Pacific Coast. Fairly heavy shipments of rods are being made to the Orient, and also into Canada. Prices on high carbon rods are arbitrary and range from \$75 to \$85 at mill depending on the carbon contents, but one leading mill is said to be charging a straight advance of \$10 per ton for high carbon rods, regardless of the carbon contents, over the price of soft chain rods, which is \$57 at mill. Output of rods is being cut down very much by the shortage in steel, and more rods are being rolled from Bessemer stock than in a long time. Prices on rods are given in detail on page 231.

Wire Products.—Mills report the new demand for wire and wire nails as only fairly active. The extremely cold weather and the heavy snows have made country roads impassable, and this and the falling off in new building are given as the main reasons for the dull demand for wire nails. Jobbers are not buying very heavily, as they figure that if a revision in prices is made on April 1, it will be to a lower basis, and they are not carrying any larger stocks than are needed to meet the demands of their trade. The export inquiry for wire and wire nails is heavy, but it is almost impossible to get cars, and bottoms are about as hard to obtain. Output of wire products is being cut down very much by the shortage in supply of steel. A local mill received an order recently for about 6000 kegs of wire nails to be used in the construction of buildings at a Government proving ground, and another mill booked an order last week for 1000 tons of galvanized barb wire at the regular price. Prices on wire products are given in detail on page 231.

Nuts and Bolts.—The new demand from domestic consumers is dull and has been for several months. Fully 75 per cent or more of new orders being placed for nuts and bolts is direct or indirect Government business. Makers are not keen to sell for delivery beyond March 31, as a revision of prices to a lower basis may come at that time and consumers are not placing orders very freely for the same reason. Discounts on nuts and bolts as fixed by the Government are given on page 231.

Rivets.—Makers report the general demand very dull and say that 75 per cent or more of the new business they are taking is on direct or indirect Government orders. We quote structural rivets at \$4.65, and cone head at \$4.75 per 100 lb. f.o.b. Pittsburgh.

Hoops and Bands.—The demand for hoops and bands is fairly heavy, and some good sized orders have lately been placed for delivery in this quarter. The Government recently placed an order for 400 tons of hoops for shipment to France, and another order for 500 tons for domestic use. We quote steel hoops at 3.50c., and steel bands at 2.90c. extras on the latter as per the steel bar card f.o.b. Pittsburgh.

Shafting.—The general demand for shafting is dull, and specifications against contracts placed some time ago are not very active. The new demand from the automobile trade is very quiet. The Government is still placing probably 75 per cent of the new business in shafting that is being taken. We quote cold rolled shafting in large or small lots at 17 per cent off list, f.o.b. Pittsburgh.

Cold-Rolled Strip Steel.—The domestic demand is fairly active, but is mostly for small lots. Makers and consumers alike are not doing any new business for delivery beyond this quarter, as a revision in prices on cold-rolled strip steel to a lower basis may come on March 31 or shortly after.

We quote cold-rolled strip steel at \$6.50 per 100 lb., f.o.b. Pittsburgh, terms 30 days, less 2 per cent for cash in 10 days, when sold in quantities of 300 lb. or more.

Hot-Rolled Strip Steel.—The new demand is only fair, makers not selling for delivery beyond March 31,

and buyers are not placing orders for delivery beyond that date, in view of a possible revision in prices to a lower basis. We quote hot-rolled strip steel at \$4.50 per 100 lb., f.o.b. Pittsburgh.

Spikes.—Makers report the new demand very quiet, but several railroads have come in the market for fairly large quantities for delivery in this quarter. We quote standard sizes of railroad spikes, 9/16 x 4½ in. and larger, at \$3.90 per 100 lb. in lots of 200 kegs of 200 lb. each, or in larger lots. Boat spikes are held at \$5.25 per 100 lb., f.o.b. Pittsburgh.

Wrought Pipe.—It is stated that output of iron and steel tubular goods this month will not be over 50 per cent of normal. Last week and this week the Pennsylvania and Continental works of the National Tube Co. in this city were down completely for lack of coal, and while the National works at McKeesport are on full this week, the supply of coal at that plant is very light. Leading pipe mills have very little material to offer for delivery before second half of this year, and if the present small rate of output continues for any length of time, some mills will have very little pipe to offer for delivery this year. The Government is still buying fairly large quantities of steel pipe, on which the mills are making very prompt delivery. Discounts on iron and steel pipe are given on page 231.

Boiler Tubes.—Most of the new business being placed in iron and steel tubes is coming from the Government, which has been a very heavy buyer for some months. The demand for oil country goods is dull, as the extreme cold weather and heavy snows have largely put a stop to drilling operations. Discounts on iron and steel tubes, as fixed by the Government, are given on page 231.

Coke.—Operating conditions in the coke trade are worse this week than last. The zero weather that started on Saturday cut down output very much, thousands of men failing to report for work during the extreme cold weather. The supply of cars is very poor, running some days as low as 25 per cent of normal, and seldom being more than 50 per cent. Many coke plants have cars loaded which they cannot move for lack of motive power, and, in addition, have coke piled in their yards waiting for cars, this often necessitating closing down plants until cars are received. There is a heavy demand for furnace coke for prompt shipment, but producers are not able to get cars and the situation is bad in every way. It is claimed that with 10 days or two weeks of mild weather without snow, the railroads would be able to give coke operators enough cars to get rid of their surplus coke, and that conditions would very soon be back to normal. No contracts are being made for furnace or foundry coke, as the Government may revise prices on March 31. We continue to quote blast furnace coke at \$6; 72-hr. foundry at \$7, and crushed coke from 1-in. size, at \$7.30, all in net tons at oven. The *Connellsville Courier* gives the output of coke in the upper and lower Connellsville regions for the week ending Jan. 5 as 216,098 tons, a decrease below the previous week of 35,300 tons, this being the lowest output of coke in the regions for more than a year, due to coke piled up, causing many plants to close until they could get cars.

Old Material.—The American Board of Scrap Iron Dealers, Philadelphia, has sent out a notice to its members that prices announced on scrap by the American Iron and Steel Institute committee are in effect and will be until March 31. Conditions in the scrap trade show no change and remain as given in our report last week. Very little scrap is moving owing to railroad embargoes on all the railroads and inability of dealers to get cars. There is a very heavy demand for scrap of all kinds from consumers, whose stocks are running very low. There have been some sales of heavy melting steel at \$30; borings and turnings at \$20, and low phosphorous melting scrap at \$40, all in gross tons delivered, but when the buyers of this scrap will get it, is very much of a question. When the American Iron and Steel Institute fixed the price of No. 1 busheling scrap at \$35 per gross ton, it caused a good deal of comment in the trade, as this material always sold at a good deal lower prices than heavy melting steel scrap,

the price of which was fixed by the Government at \$30 per gross ton. Dealers here say that it would not be possible to get over \$27 or \$28 per gross ton for No. 1 busheling and we have reduced our quotation to agree with this. Government prices on iron and steel scrap for delivery in the Pittsburgh district and other consuming points that take Pittsburgh freights are as follows:

Heavy steel melting scrap, Steubenville, Folsom, Brackenridge, Monessen, Midland and Pittsburgh, delivered	\$30.00
No. 1 foundry cast	30.00
Rerolling rails, Newark and Cambridge, Ohio, Cumberland, Md., Franklin, Pa., and Pittsburgh	35.00
Hydraulic compressed sheet scrap, \$26.00 to	27.00
Bundled sheet scrap, sides and ends, f.o.b. consumers' mill, Pittsburgh district	24.00 to 25.00
Bundled sheet stamping scrap	22.00 to 23.00
No. 1 railroad malleable stock	30.00
Railroad grate bars	19.00 to 20.00
Low phosphorous melting stock	40.00
Iron car axles	47.50
Steel car axles	47.50
Locomotive axles, steel	47.50
No. 1 busheling scrap	27.00 to 28.00
Machine shop turnings	20.00
Cast iron wheels	30.00
Rolled steel wheels	30.00
*Sheet bar crop ends	39.00 to 40.00
Cast iron borings	20.00
No. 1 railroad wrought scrap	35.00
Heavy steel axle turnings	25.00 to 26.00
Heavy breakable cast scrap	30.00

*Shipping point.

Chicago

CHICAGO, Jan. 15—(By Wire).

Little or no betterment is reported to-day in regard to blast furnace and steel works operations. Large numbers of steel plant employees who were loaned to the railroads continue to do good work in clearing the tracks, but coal and coke for furnace consumption must begin to move steadily before the idle furnaces and steel works can resume. Another storm was expected to hit Chicago last night, but the weather has been cold and clear, the storm having passed just to the south. Reports from Indianapolis and southern Indiana, also from Peoria, Ill., say that the snowfall in those places was heavy to-day and that the railroads in those parts are in worse shape than ever. This means further interruption to coal deliveries. The blast furnaces of the Iroquois Iron Co. have continued in operation, and the new plant of the Mark Mfg. Co., Indiana Harbor, was halted last Saturday only. Both Inland Steel Co. and Illinois Steel Co. say there is but little improvement at their works.

CHICAGO, Jan. 14.—A very severe blizzard following the heavy snowfall of the week previous brought about an almost complete paralysis of operations in the Calumet district of Chicago. Most of the mills gave up last Saturday and since then there has been an irrecoverable loss in iron and steel production which will cause January to make an extremely poor showing. Since Saturday the mills have used many of their employees in digging the plants out, and they have loaned many more to the railroads, so that clogged switches, signals and cuts might be cleared of the huge drifts of snow which fell in quantities abnormal for this region. Old inhabitants say they never saw so much snow before. The Illinois Steel Co. has in operation only one blast furnace at Joliet, two at South Works and four at Gary, while the mills at all three places have been idle since Saturday. The company has managed to keep its coke ovens warm and that is about all. The entire plant of the Inland Steel Co., Indiana Harbor, Ind., has been closed since Saturday, three blast furnaces being partly banked and no attempt being made to make steel. The company has some coal, but events proved the wisdom of conserving it to keep the plant from freezing. On Saturday, at the Inland Steel Co.'s plant, employees could not get to their stations and there was no mail. Friday was bad and Saturday was worse. The larger companies hope to get things partially straightened out and in operation within a couple of days, but they recognized the futility of starting until they get sufficient fuel to en-

able them to keep going. The bar mills of the Interstate Iron & Steel Co. and the Republic Iron & Steel Co., East Chicago, are completely down and neither expects to do much this week except to get ready to resume again. Both companies have loaned men to the railroads to assist in relieving the congested tracks. At the Republic plant, a roof over the bar mill collapsed Jan. 6 under the weight of snow, and a temporary roof has been improvised. The entire works of the Wisconsin Steel Co., South Chicago, are idle, the one furnace which was in operation being banked, making three out of commission. Heroic efforts are being made on all sides to bring about normal conditions, but another fall of snow is declared to be imminent. The outlook for transportation and operations dependent thereon is bad. The snow blockade caused the banking of furnace B. of the Federal Furnace Co., South Chicago. Government orders coming direct have been lighter in the past few days, but other users have been a little more active in specifying. Though there is no unanimity about it, steel makers are not anxious to sell with the Government clause in contracts making prices on deliveries subsequent to March 31 one subject to revision, and the attitude of one company in this respect puts it out of the market for the first quarter on practically everything. It is suggested that the Government is working to bring about a spot sales basis. The local foundries casting iron are busy and the demand for steel castings is unprecedented.

Pig Iron.—There is no difficulty in selling iron for last half delivery, although there is no great pressure of inquiry. Miscellaneous lots from various sources change hands quickly, not infrequently when offered to consumers who had not announced themselves as in the market. A little switching of deliveries is, being done to relieve the spot needs of melters. Where iron is sold for the last half, the required revision of price clause is inserted in contracts and some sellers have inserted a further stipulation that the contract is subject to cancellation if the Government at the end of the first quarter should make a price at which producers could not afford to sell. The silveries are in strong demand for all deliveries, with none to be had. For malleable Bessemer there are a few inquiries, one from Milwaukee calling for 1500 tons. Another inquiry specified 2000 tons of foundry iron. In charcoal iron, a little is being done for the last half, with regular customers the chief buyers. The situation is construed as one where consumers, least of all, have to worry, especially in regard to prices. There is no deviation from the agreed official prices. Among consumers the worst effects of the storm will come later. The following quotations are for iron delivered at consumers' yards, except those for Northern foundry, malleable Bessemer and basic irons, which are f.o.b. furnace, and do not include a switching charge averaging 50c. per ton:

Lake Superior charcoal, Nos. 2 to 5	\$37.50
Lake Superior charcoal, No. 6 and Scotch	40.00
Northern coke foundry, No. 1	33.50
Northern coke foundry, No. 2	33.00
Northern coke foundry, No. 3	32.50
Northern high-phosphorus foundry	33.00
Southern coke No. 1 foundry and 1 soft	38.50
Southern coke No. 2 foundry	37.00
Malleable Bessemer	33.50
Basic	33.00
Low phosphorus (copper free)	53.00
Silvery 7 per cent	44.54

Ferroalloys.—Eighty per cent ferromanganese is quiet but firm at \$250.

Plates.—In limited quantities, an Ohio mill continues to offer plates of tank quality 72 in. and narrower and a mill further East has done a little. The leading independent has no plates to offer, and the principal producer is caring only for its regular customers. For material out of stock, jobbers quote 4.45c.

Structural Material.—No car business is reported and fabricating plants would be flat were it not for Government work on ship parts and other war requirements. No new structural lettings are reported but in the way of cleaning up old propositions it may be stated that a Ford service building at Des Moines, Iowa, involving 123 tons and 11 lattice spans for a bridge over the Canadian river near Eufaula, Okla., taking 405

tons, went to unknown bidders. It follows that shapes are in very light demand. Jobbing quotations are unchanged at 4.20c.

Bars.—Some mild steel bars made locally, also some from the East, are available for first-quarter delivery at the fixed price of 2.90c. In iron bars, a fair volume of orders is being booked at the official price of 3.10c., Chicago, largely because of the demand arising from the requirements of makers of war vehicles, iron being preferred for tires. Rail carbon bars continue quiet, although some makers note a little picking up, the price being the Government level of 3c. plus extras. Re-rolling rails are scarce. Warehouse prices are unchanged, as follows:

Soft steel bars, 4.10c.; bar iron, 4.10c.; reinforcing bars, 4.10c.; base, with 5c. extra for twisting sizes $\frac{1}{2}$ in. and over and usual card extras for smaller sizes; shafting, list plus 10 per cent.

Wire Products.—The market is quiet, jobbers not being disposed to buy while present weather conditions last. Production meanwhile is cut down. Government prices rule:

Nails, \$3.50, Pittsburgh; plain fence wire, \$3.25; painted barb wire, \$3.65; galvanized barb wire, \$4.35; polished staples, \$3.65, and galvanized staples, \$4.35.

Rails and Track Supplies.—No business worthy of note is reported. Track spikes and bolts are readily obtainable in at least one direction. We quote Government prices as follows: Standard railroad spikes 4.11 $\frac{1}{2}$ c., Chicago. Track bolts, with square nuts 5.11 $\frac{1}{2}$ c., Chicago. Tie plates 3.25c., f.o.b. maker's mill. The base for light rails is 3c. f.o.b. maker's mill for 25- to 45-lb. sections, lighter sections taking Government extras. The old prices for standard section rails are obsolete, and new prices have not been officially announced, but quotations on small lots have exceeded \$70.

Sheets.—The Government ruling that contracts extending beyond March 31 must contain a clause consenting to the revision of prices, if officially ordered, on deliveries made subsequent to that date, has caused some makers to withdraw from the market. They are sold up for the first quarter and will suspend selling until they know what the second quarter price is to be. An Ohio maker still has sheets to sell at the agreed prices as follows: No. 28 black, 5c.; No. 10 blue annealed, 4.25c., and No. 28 galvanized, 6.25c. Warehouse prices are unchanged.

We quote for Chicago delivery out of stock, regardless of quantity, as follows: No. 10 blue annealed, 5.45c.; No. 28 black, 6.45c., and No. 28 galvanized, 7.70c.

Cast Iron Pipe.—No lettings are reported and prices remain without change.

Quotations per net ton, Chicago, are as follows: Water pipe, 4-in., \$57.30; 6-in. and larger, \$54.30, with \$1 extra for Class A water pipe and gas pipe.

Bolts and Nuts.—Orders for 37,000,000 bolts were placed with bolt and nut manufacturers a few days ago by the Quartermaster's Department of the Army, and since then inquiry for 55,000,000 bolts has come from the same source. The latter requirement amounts to about 300 carloads, which no one maker can handle. Otherwise the bolt and nut business is rather quiet, consumers continuing to order in hand-to-mouth manner, a policy which may cause a flood of business to appear in the spring. At present, a great number of orders and specifications are being handled but individually they are small.

Store prices are as follows: Structural rivets, 5.50c.; boiler rivets, 5.60c.; machine bolts up to $\frac{3}{4}$ x 4 in., 40 and 10 per cent off; larger sizes, 35 and 5 off; carriage bolts up to $\frac{3}{4}$ x 6 in., 40 and 2 $\frac{1}{2}$ off; larger sizes, 30 and 5 off; hot pressed nuts, square tapped, \$1.05 off, and hexagon tapped, 85c. off per 100 lb.; coach or lag screws, gimlet points, square heads, 50 per cent off.

Old Material.—The tie-up of traffic has caused some of the mills to ask that deliveries be suspended for the time being. While deliveries could hardly be made at this time, the congestion on the railroads can be made worse by making shipments. But little scrap is being offered and the market is firm. In last week's report, old steel rails less than three feet were erroneously changed to old steel rails less than 18 in., the

latter being the view of a large consumer. The trade, however, is opposed to the classification he created. Whenever maximum prices are reached, the buyer is privileged to pay a commission of 3 $\frac{1}{2}$ per cent on the maximum price to the dealer or broker acting for him. We quote for delivery in buyer's yards, Chicago and vicinity, all freight and transfer charges paid as follows:

Per Gross Ton

Old iron rails.....	\$38.00 to \$39.00
Relaying rails.....	60.00
Old carwheels.....	30.00
Old steel rails, rerolling.....	35.00
Old steel rails, less than 3 ft.....	34.00 to 35.00
Heavy melting steel.....	30.00
Heavy melting steel, cut short lengths.....	33.00
Frogs, switches and guards, cut apart.....	30.00
Shoveling steel.....	30.00
Steel axle turnings.....	25.00 to 26.00

Per Net Ton

Iron angles and splice bars.....	\$37.00 to \$38.00
Iron arch bars and transoms.....	39.00 to 40.00
Steel angle bars.....	28.00 to 29.00
Iron car axles.....	47.00 to 48.00
Steel car axles.....	42.42
No. 1 railroad wrought.....	31.25
No. 2 railroad wrought.....	30.50 to 31.00
Cut forge.....	30.50 to 31.00
Pipes and flues.....	24.00 to 24.50
No. 1 busheling.....	26.00 to 27.00
No. 2 busheling.....	18.00 to 19.00
Steel knuckles and couplers.....	33.50 to 34.50
Coil springs.....	37.00
No. 1 boilers, cut to sheets and rings.....	22.00 to 23.00
Boiler punchings.....	31.00 to 32.00
Locomotive tires, smooth.....	36.50 to 37.50
Machine-shop turnings.....	17.00 to 17.50
Cast borings.....	16.50 to 17.00
No. 1 cast scrap.....	26.00 to 26.75
Stove plate and light cast scrap.....	21.50 to 22.50
Grate bars.....	21.50 to 22.50
Brake shoes.....	24.00 to 25.00
Railroad malleable.....	26.80
Agricultural malleable.....	25.00 to 26.00
Country mixed scrap.....	21.50 to 22.50

Cincinnati

CINCINNATI, Jan. 15.—(By Wire.)

Pig Iron.—It is practically impossible to move shipments from any point and some foundry iron has been en route from Birmingham to local melters more than three weeks. While the weather has moderated, there are no indications to-day that the railroads will be able to locate and deliver shipments en route at an early date. The excuse given is the extremely cold weather that has disrupted service and also a lack of motive power, which has caused a congestion of side tracks all over the different transportation systems. The inquiry for foundry iron is heavy, but there is very little to offer. A little Southern iron can be had for second quarter and last half shipment, but the furnaces as a rule do not care to sell ahead except to their old customers. One producing interest in southern Ohio offered last week a limited tonnage of Ohio silvery and some Bessemer ferrosilicon for last half delivery, but all of this has now been disposed of. There are no inquiries out for basic, as consumers realize that it would be futile to start negotiations now for any future supply wanted. The same conditions exist as far as malleable is concerned. Based on freight rates of \$2.90 Birmingham and \$1.26 from Ironton, we quote f.o.b. Cincinnati as follows:

Southern coke, No. 2 foundry and 2 soft.....	\$35.90
Southern Ohio coke, No. 2.....	34.26
Basic, Northern.....	34.26

Coke.—Several local foundries, have been compelled to shut down due to lack of coke and others have not more than a five days' supply with no relief in sight. Nearby outside foundries are in practically the same condition and while many of them have cars en route, they have despaired of getting them delivered promptly. An instance of the slow service caused by the extremely cold weather concerns the switching of a car of foundry coke that has been on the Ohio side of the river several days, but all efforts to have it placed have been unsuccessful. Wise County producers have proportionately shipped out more coke lately than those in any other district.

Finished Material.—Business is at a standstill and deliveries can not be made from warehouse stocks either locally or to outside points. A few orders for wire nails have been received for shipment after the railroad con-

gestion is relieved. The nearby mills quote No. 28 black sheets at 5.18½c., and No. 28 galvanized sheets at 6.43½c., f.o.b. cars Cincinnati or Newport, Ky. Store prices are as follows: Iron and steel bars, 4.08½c.; twisted bars, ¾ x 1¼-in., 4.23½c.; ¾-in., 4.33½c.; ½-in., 4.43½c.; ¾-in., 4.63½c., and ¼-in., 4.88½c. Structural shapes are 4.18½c.; plates ¼-in. and heavier, 4.43½c.; No. 10 blue annealed sheets, 5.43½c. Cold-rolled shafting carries a 10 per cent discount from list.

Old Material.—The local foundries have lately melted a lot of No. 1 machine cast scrap, as a few of them have a sufficient supply of high silicon iron to enable them to use 50 per cent scrap in castings. No shipments can be made to outside consuming points. Prices are unchanged. The following are dealers' prices, f.o.b. cars southern Ohio and Cincinnati:

Per Gross Ton	
Bundled sheet scrap.....	\$19.00
Old iron rails.....	\$32.00 to 32.50
Relaying rails, 50 lb. and up.....	44.00 to 44.50
Rerolling steel rails.....	33.00 to 33.50
Heavy melting steel scrap.....	27.00
Steel rails for melting.....	27.00 to 27.50
Old carwheels.....	28.00
Per Net Ton	
No. 1 railroad wrought.....	\$29.00 to \$29.50
Cast borings.....	13.00 to 13.50
Steel turnings.....	13.00 to 13.50
Railroad cast.....	24.50 to 25.00
No. 1 machinery.....	25.00 to 25.50
Burnt scrap.....	15.00 to 15.50
Iron axles.....	40.00 to 40.50
Locomotive tires (smooth inside).....	33.50 to 34.00
Pipes and flues.....	19.00 to 19.50
Malleable cast.....	23.50 to 24.00
Railroad tank and sheet.....	17.00 to 17.50

Birmingham

BIRMINGHAM, ALA., Jan. 15.

Inquiries for pig iron continue to come in without hesitation and southern manufacturers are booking business as they desire it. Certain grades and a little off grade are still to be had for first half of the year delivery. Regular customers receive attention for the last half of the year. Production in the South shows no improvement, contrary to expectations a few weeks ago. Statistics prepared show that the pig iron production in Alabama in December amounted to 239,605 tons, against 247,089 tons in November. The same authority estimates a production of 2,906,155 tons for the year 1917, against 2,762,885 tons for the previous year, 1916, an increase of 143,270 tons. Inquiries are being received by southern iron manufacturers from every direction and stipulation to take the product at the earliest time possible, even toward the end of the year, is to be heard. Delivery of iron in the South shows but little improvement. Much is expected in this direction, however, through the Government control of the railroads and the elimination of passenger train service. Pig iron prices continue at \$33.00 per ton, No. 2 foundry, f.o.b. furnaces, with the same differentials as existed before the Government schedule was made.

Scrap Iron and Steel.—Dealers in old material in the South report consumers buying from hand to mouth, intimating there is likely to be revision in schedule of prices by the Government downward by April 1. But little change is noted in the prices for old material. Embargoes still hold back shipment of scrap to the East, though some business is offered. There is a fairly good stock in hand, and consumers are showing intentions of not stocking ahead. Following prices of old material are given:

Old steel axles.....	\$32.00 to \$33.00
Old steel rails.....	28.00 to 30.00
Heavy melting steel.....	23.00 to 24.00
No. 1 railroad wrought.....	28.00 to 32.00
No. 1 cast.....	25.00 to 27.00
Stove plate.....	19.50 to 21.50
Old carwheels.....	25.00 to 30.00
Tramcar wheels.....	20.00 to 25.00
Machine shop turnings.....	17.00 to 18.00
Cast iron borings.....	13.00 to 15.00

Coal and Coke.—The same condition as before exists in the South as to coal and coke; the production is heavier, but the shortage is still acute. The governor of Alabama is instructing coal producers, especially

those employing state convicts, to ship coal to Alabama cities and towns. The coke production is still above normal, but there is a sharp demand right along. The furnace coke is about up to needs, but it is necessary to keep the production steady and attention must be kept on the delivery.

San Francisco

SAN FRANCISCO, Jan. 2.

Aside from Government work and work directly dependant on Government activity, the whole situation here is waiting on the outcome of a threatened strike affecting all of the iron and steel workers in the San Francisco Bay district not actually engaged on Government work in the various shipyards. The trouble results from the action of the Federal Shipping Board in allowing a 10 per cent bonus to men engaged on Government work in the shipyards and from the action of the union metal workers on other work in demanding a similar increase. So far, most of the employers who are included either in the California Metal Trades Association or in the California Foundrymen's Association have refused to grant the increase; and this morning many workers, variously estimated at from a few hundred to 10,000 or 12,000, refused to go to work. It is still hoped that something will be done to avoid a general and serious strike, but the feeling is undoubtedly growing among the employers that they might as well fight it out now as later. Many would certainly be in favor of avoiding trouble and coming to terms with the men if they could feel that anything like a permanent arrangement could be made; but if a concession now merely means further demands a few weeks later, the larger employers will stand against the concession. The Government is expected to take a stand against a strike, and there is hope that Government influence will prevail. So far as the traffic situation is concerned, there is no change, and in regard to prices the market is strictly based on Government figures, except in a few cases where immediate delivery is demanded and a higher price agreed upon, or where a jobber has an unusual stock and is willing to take a lower price in order to reduce it. The jobbing prices were stabilized a few days ago at a meeting of the Pacific Coast Jobbers' Association, when it was agreed that the resale prices recommended by the Government on iron and steel commodities in general, plus freight and profit allowance, should be adopted as the standard of prices. These prices will mean a loss on some of the materials in stock, but it will serve to standardize the business and in that way will work a benefit to all. Exporters say that the Japanese market is strengthening and becoming more favorable in every way. The other oriental markets are still upset, but they may react to the example of the Japanese market.

Bars.—The Government prices on bars is 2.90c. and freight to this market is 0.75c. This makes the jobbers cost price 3.65c. Adding the Government allowance for profit of 1c., makes the jobbers' price for bars in San Francisco 4.65c. Notwithstanding this established price, some bars recently have been sold here as low as 4c. by eastern representatives, who have merely taken the order and sent it to their eastern house.

Structural Materials.—There was no change in the structural materials market. The jobbers had already adopted the Government basic prices.

Plates.—The Government demand for plates continues strong and the market outside this demand is becoming more staple. The selling price established by the jobbers has been fixed at 5c.

Sheets.—The Government continues to absorb practically all the sheets reaching this market, and the trade for other than Government uses is not well supplied. The new jobbers' price for galvanized sheets reduces the price from a 8.60c. base to 8.35c. base. This is 0.05c. less than was expected before exact figures were available.

Wrought Pipe.—There appeared to be an easing up in the situation in wrought pipe this week, especially

among the independent mills, which are accepting orders locally for a comparatively early delivery. Small sizes of wrought pipe especially are plentiful, but large sizes are available only on long time delivery contracts.

Cast Iron Pipe.—The price of cast iron pipe was lowered 1c. to 49c. on the local market Dec. 22. This quotation is on Birmingham base.

Pig Iron.—Pig iron tonnage is getting very light. That with a high silicon content is practically out of the market. The dealers are not seeking any new contracts until after the first of the year, and in the meantime they are checking up on their stock and contracts before taking on new business.

Coke.—The coke situation in this market is still very much mixed. Some of the consumers are already getting low in their stock of coke and if the matter is not soon adjusted to a basis which the local consumers can understand and depend upon the situation may become serious.

Old Material.—The end of the year quiet prevails in the scrap market. Cast iron scrap is firm and unchanged, but some of the dealers are worrying over the steel scrap market. They fear that the Government will establish a price on steel that will result in a serious loss for them on steel scrap bought at previous higher prices.

British Steel Market

Sales of Ferromanganese to America—Tin Plate Higher—Pig Iron Unchanged

(By Cable)

LONDON, ENGLAND, Jan. 16.

Pig-iron conditions are unchanged. American semi-finished steel is nominal and tin plates are steady at 31s. 4½d. basis. Ferromanganese has been sold for forward shipment to American Atlantic ports at \$250 c.i.f. We quote as follows:

Tin plates coke, 14 x 20; 112 sheets, 108 lb., f.o.b. Wales, 31s. 4½d.
Ferromanganese \$250 c.i.f. for export to America.
Ferrosilicon, 50 per cent, c.i.f. £35 upward.
On other products control prices are as quoted in THE IRON AGE of July 19, 1917, p. 171.

Tin Plate and American Steel Lower—Pig-Iron Exports Decreasing

(By Mail)

LONDON, ENGLAND, Dec. 18, 1917.—Amid the unabated pressure caused by the huge national requirements, the position remains as unsettled as ever as to a general adjustment of maximum rates in connection with increased costs. It seems to be understood that the small increases in foundry iron have nothing to do with the recent advance in coal, but have been necessitated by increased costs in other directions. The recent advance of 14s. in the f.o.b. export price of Cleveland No. 3 to 116s. 6d. represents, however, not only the rise in fuel, but also in iron ore and limestone. In the case of Cleveland hematite, which was raised for export only by 6s. 6d. per ton to 147s. 6d. f.o.b., the difference in the advance against Cleveland is due to the fact that the costs of hematite are not affected to the same extent.

Opinion now varies as to how a general adjustment will be effected whether by a subsidy or by a revision of the maxima. There is some apprehension that the subsidy alternative might lead to friction with the men from a wages viewpoint. However, a clearing up of the impasse is anxiously awaited and it is hoped that this will materialize before the new year.

Within the last three months there has been a steady shrinkage in the exports of pig iron, the November official outgo amounting to only 36,008 tons, comparing with 49,986 tons, and 86,216 tons respectively in the previous two years. The total for the eleven months represents 704,047 tons against 868,854 tons last year.

The allocations of Cleveland iron for December were

very heavy, thus making up for the arrears of the previous month, but there is some doubt whether iron will reach consumers so easily, because of the car shortage, although urgent needs appear to be well protected. The position will presumably become more stringent since the output of foundry iron has been decreased in order to add to that of basic metal. Export business is slow and featureless. There is no change in Cleveland hematite, which is strong, with a continuous big home demand, while the filling of requirements is facilitated somewhat by the lack of export facilities. The price of blast furnace ferro-silicon has remained unchanged, but a revision is expected shortly.

Electric Steel Under Control

The position of domestic semi-finished steel continues tight, the output being chiefly absorbed by government needs, and the official price of Welsh bars and billets is retained at £10 7s. 6d. net f.o.b. An indication of the stringency is the fact that shell discard material has now been taken under control, also electric steel. There is a little demand for American wire rods, but business is almost impossible owing to the American embargo and freightage difficulties. Terms, however, are certainly weaker at about £21 c.i.f. Liverpool for January-February shipment, but the market is chiefly nominal.

In finished iron and steel manufacturers are very much concerned over their position incidental to an adjustment of prices of raw material, and new business is held up. There is a ceaseless active demand from consumers who buy anything obtainable subject to prices being adjusted later on. The whole of current production disappears into consumption almost entirely for essential national requirements, pressure of working being greater than ever, while bar-iron makers are steadily refusing new orders. Practically the entire trade is under control, with business subject to government permits. There is a little competition in uncontrolled material of which, however, not very large quantities are obtainable even at full prices. Iron and steel hoops stand at £18 to £19, and steel strips at £18 to £18 10s. net, delivered to the home trade. The demand for scrap is becoming more insistent in anticipation of an advance in prices, but the placing of orders is more difficult.

Business in tin plates has been chiefly hindered by the more backward attitude of the authorities in issuing permits and this, coupled with delayed specifications, has resulted in freer competition at prices 6d. per box or so below the full maximum basis amounting to-day to about 31s. 6d. for cokes 20 x 14.

Export business is dead. No new demands have come from France, but makers are fairly well booked into next month and ask full terms for forward contracts. Deliveries of steel bars are quite regular and the wage question is now practically settled. Makers are complaining bitterly of the continuous accumulation of stocks of odd size wasters owing to lack of licenses, and it is hoped that the authorities will remedy this by a freer issue of permits for various trade purposes for which this material can be used instead of lying idle.

Tin Plates for Spain

It is reported that the Spanish authorities have succeeded in making arrangements for the imports of material for tin-plate making and food preserving purposes. Conferences have been held at Bilbao between consumers' representatives and producing works for regulating deliveries and taking steps to eliminate certain middlemen whose abuses were complained of. Efforts are being made to bring about direct relations between producers and consumers.

Ferromanganese is unchanged. On the one hand prices for Continental ports are rather firmer with some business done lately at £60 for loose and £62 10s. packed f.o.b. for forward shipment, but on the other hand easier terms have been entertained for North American Atlantic ports down to about \$250 c.i.f. January-June shipment. A revision of the home trade price of £20 is still awaited, and meantime sales are made subject to this.

Philadelphia

PHILADELPHIA, Jan. 15.

Present conditions are the worst ever experienced in the iron and steel business of eastern Pennsylvania. Railroad embargoes, cold and stormy weather and coal and coke shortage, all more or less interlinked, have produced a situation which is almost desperate. The attention of the Government has been called to the fact that unless assistance is received soon, a complete shut-down of the plants of the Bethlehem Steel Co. and the Midvale Steel & Ordnance Co. is not improbable. The Bethlehem mills and furnaces are suffering severely from lack of coal and coke. The Midvale Steel & Ordnance Co. has not covered for its coke requirements this year and to take care of these two companies the Fuel Administration proposes to divert 100,000 tons of coke a month from other blast furnaces, thereby shutting many of them down, perhaps indefinitely. Several blast furnaces in this district are banked and steel mills are operating at about 50 to 60 per cent capacity, if they are operating at all. A number of mills are completely shut down. The finishing mills of the Eastern Steel Co., Pottstown, Pa., have not been in operation since Jan. 4. The embargo on the Pennsylvania Railroad is the most drastic ever known by shippers. Nothing but coal, coke, dolomite, ganister, fire brick, fire clay and other supplies for blast furnaces, some food products and goods consigned to the United States Government or to the railroad itself can be shipped without a permit. These permits are sometimes difficult to obtain, as the railroad requires definite promises of prompt loading and unloading of cars. Shipments to manufacturers engaged in Government work do not fare any better than any other class of material unless they are consigned to an officer of the Government.

Pig Iron.—A hurried meeting of the Eastern Pig Iron Association was held in Philadelphia on Monday to appoint a committee to go to Washington to confer with J. Leonard Replogle, Director of Steel Supply, and the officials of the Fuel Administration relative to advices which had been received over the long distance telephone from Washington by several of the furnace operators to prepare for an enforced shut-down of a number of blast furnaces on account of the coke shortage. The immediate reason for the Government's contemplated action is the desire to keep the plants of the Bethlehem Steel Co. and the Midvale Steel & Ordnance Co. operating at full capacity, and this cannot be done, it is asserted, unless about 100,000 tons of coke per month are diverted from merchant blast furnaces to these companies. Government authorities are quoted as saying that it would produce a bad effect abroad if it were known that the Bethlehem and Midvale plants had been obliged to close, as these two plants have been turning out a large proportion of the heavy guns upon which the Army and the Navy are depending. A decision is said to have been reached that these two plants must be provided with sufficient coke even if other plants were forced to close. The contention was made in Washington that some of the blast furnaces might better go out of blast entirely for an indefinite period than to limp along as they have been doing. Blast furnace operators are said to dissent from this view, holding that it is much better to keep running even at low capacity in order to keep their working organizations intact. This method of operation is extravagant, however, as a great amount of coke is wasted, and it is this waste which has led the Fuel Administration to consider seriously the advisability of shutting down a number of the furnaces. To provide the 100,000 tons of coke needed each month, eight large furnaces in this district would be deprived of coke entirely. The result of the visit of the pig iron committee to Washington was to postpone action until the matter can be more thoroughly considered. The order was to have become effective to-morrow (Jan. 16). Aside from one sale of 15,000 tons of basic iron for delivery over the first half, business in this market has been dull during the past week. Furnaces have practically nothing to sell. The business now being done is mostly in carload lots, and a great deal consists of off iron. The

Navy Department wants 8000 tons of Nos. 1, 2 and 3 foundry iron for second quarter delivery. This will be split up among a number of furnaces, about 2400 tons coming to furnaces in this district. The Penn Seaboard Steel Corporation, Philadelphia, has issued an inquiry for 16,500 tons of basic iron for second quarter, 3500 tons per month for its Baldt works at New Castle, Del., and 2000 tons per month for its New Haven, Conn., works. There was very little interest in this inquiry among furnace representatives because of their sold-up condition. Three of the Empire Steel & Iron Co.'s furnaces are banked. One Warwick furnace is still out and the Alan Wood Iron & Steel Co. still has one of its two furnaces banked. The Brooke furnace has resumed operations. We quote the following standard grades at furnace, with the exception of Virginia iron, for which the delivery prices are quoted:

Eastern Pennsylvania No. 1 X.....	\$34.50
Eastern Pennsylvania No. 2 X.....	33.50
Eastern Pennsylvania No. 2 foundry.....	33.00
Virginia No. 2 X (including freight).....	36.77
Virginia No. 2 foundry (including freight).....	36.27
Basic.....	33.00
Gray forge.....	32.00
Bessemer.....	36.30
Standard low phosphorus.....	53.00
Low phosphorus (copper bearing).....	50.00

Ferroalloys.—The ferromanganese market is strong, due to the fact that furnaces are not operating at full capacity. Demand is light, but the price remains at about \$250 for the 80 per cent. Rumors of prices being shaded in some instances to \$248 in carload lots cannot be confirmed. Manganese ore is scarce and brings a good price, sales of the Indian ore having been made at \$1.30 per unit. Little, if any, Brazilian ore is offered. Other ferroalloys are firm. Ferrotungsten is now quoted at \$235 to \$240. Spiegeleisen is being sold principally in carload lots and the price is usually \$60, at furnace.

Billets.—An eastern Pennsylvania steel company will fill a Government order for 45,000 tons of open-hearth re-rolling billets. Practically no sales of billets are being made in this market except upon Government order. We quote 4 x 4 in. billets at \$50.50, Philadelphia.

Sheets.—A Middle West sheet mill is offering sheets for first quarter delivery and is booking a fair tonnage, though business is naturally somewhat restricted by the railroad embargoes. We quote No. 10 blue annealed sheets at 4.25c., Pittsburgh; No. 28 black at 5c., and No. 28 galvanized at 6.25c.

Plates.—Operating conditions among Eastern plate mills are the worst yet experienced. The Bethlehem mill at Sparrows Point, Md., is in serious need of raw materials. The Lukens Steel Co. is operating at about 50 per cent capacity. The situation at other mills is approximately the same. The Pennsylvania Railroad Co. has distributed orders among several mills for about 5000 tons of universal plates for delivery over the first quarter. It is expected that the Government will soon place large orders for locomotives for American railroads with the Baldwin Locomotive Works and the American Locomotive Co. Orders for cars are also expected to come from the Government. The Baltimore & Ohio Railroad is in the market for 3000 freight cars. We quote plates at 3.25c., Pittsburgh.

Shapes.—The plant of the Eastern Steel Co., Pottstown, Pa., has been shut down since Jan. 4 for lack of coal. There is practically no new business except for the Government. Building business has fallen so low that the Bethlehem Steel Co. is now in position to make prompt deliveries of its special flanged shapes. We quote plain material at 3c., Pittsburgh.

Iron and Steel Bars.—Among the first quarter requirements of the Pennsylvania Railroad Co. are about 2000 tons of steel bars, which will probably be divided among several mills. About the only sales of steel bars for nearby delivery are shell discards and concrete reinforcing bars. Bar iron producers are having troubles with both production and shipments. There are no new developments in bar iron. We quote soft steel bars at 2.90c., base, Pittsburgh, and bar iron at 3.50c., f.o.b. mill or Pittsburgh, according to destination.

Old Material.—Business in iron and steel scrap is virtually at a standstill owing to railroad embargoes, the severe weather and the unsettled condition due to price fixing. Dealers are not anxious to book orders which cannot be immediately shipped. It is difficult to obtain railroad permits because the cold weather has made it impossible to load and unload cars with the promptness which the railroads now require. It is still more difficult, however, for the large dealers to obtain scrap, as the small dealers have been unable to load cars during the recent cold and stormy weather. We quote as follows for deliveries in the eastern Pennsylvania district:

No. 1 heavy melting steel.....	\$30.00
Steel rails, rerolling.....	35.00
Low phosphorus heavy melting.....	\$38.00 to 40.00
Low phosphorus (not guaranteed)....	33.00 to 35.00
Old iron rails.....	40.00 to 42.00
Old carwheels.....	30.00
No. 1 railroad wrought.....	35.00
No. 1 yard wrought.....	33.00 to 35.00
No. 1 forge fire.....	25.00 to 26.00
Bundled sheets.....	25.00 to 26.00
No. 2 busheling.....	17.00 to 18.00
Turnings (for blast furnace use)....	17.50 to 18.00
Machine shop turnings (for rolling mill use).....	19.00 to 19.50
Cast borings (for blast furnace use).....	17.00 to 17.50
Cast borings (clean).....	20.00
No. 1 cast.....	30.00
Grate bars.....	22.50 to 23.00
Stove plate.....	22.50 to 23.00
Railroad malleable.....	30.00
Wrought iron and soft steel pipes and tubes (new specifications).....	32.50

Cleveland

CLEVELAND, Jan. 15.—(By Wire.)

Iron Ore.—Actual sales of Lake Superior ore are being made at the 1917 prices subject to the Government change April 1 and it is expected that the business generally will be taken on this basis, although there have been strong objections on the part of some of the ore men to making definite sales at prices that are subject to Government revision. These sellers favored a policy of only making reservations until the price situation was cleared, and some reservations were made recently. At least one seller is reported to be making actual sales and another leading ore firm announces that it will go ahead and close contracts subject to Government price revision. Considerable inquiry is now coming out. We quote present prices as follows: Old range Bessemer, \$5.95; old range non-Bessemer, \$5.20; Mesaba Bessemer, \$5.70; Mesaba non-Bessemer, \$5.05.

Shipments of Lake Superior iron ore to inland furnaces from Lake Erie docks amounted to 35,830,076 gross tons during 1917, a falling off of over 1,000,000 tons from 1916, when the shipments were 36,913,000 tons, according to figures compiled by the Lake Superior Iron Ore Association. The amount on docks Jan. 1 was 453,799 tons greater than on the corresponding date a year ago, being 10,257,949 tons against 9,804,150 tons on Jan. 1, 1917. Ore has been moving slowly from the docks since the close of navigation, the amount sent forward in December, 1,050,624 tons, being 310,143 tons less than for December, 1916. This is due partly to the car shortage and partly to the fact that the scarcity of coke has retarded blast furnace operations so that the ore is not needed. Stocks on docks at Lake Erie ports Jan. 1 were as follows:

	Gross Tons
Buffalo and Tonawanda.....	444,842
Erie.....	526,766
Conneaut.....	1,528,465
Ashtabula.....	3,357,973
Fairport.....	527,262
Cleveland.....	1,885,712
Lorain.....	1,026,106
Huron.....	555,455
Toledo.....	395,368
Total.....	10,257,949

Pig Iron.—The demand for pig iron for the last half has become fairly active and considerable tonnage is being booked for that delivery, although some sellers are declining to quote for shipment beyond the second quarter, having no incentive to sell for extended future delivery because of a possible price reduction April 1. On the other hand, some buyers are holding off, fearing

a possible slump in prices late in the year. Many inquiries are still coming out for first half iron, but little is to be had. As an indication of the scarcity, one foundryman was glad to secure a few hundred tons of foundry iron by assuming the contract for \$52 iron placed by another consumer. Weather conditions during the past few days have made the railroad and coal situation worse with some furnaces. All shipments of southern iron through Cincinnati to Northern Ohio points are embargoed.

One Cleveland interest during the week sold 34,000 tons of foundry malleable and basic iron, and from inquiries pending expects to make an equal tonnage this week. One North Central Ohio steel maker has placed 20,000 tons of basic for the last half, and another is inquiring for 15,000 tons for the first half. The 3000 tons per month of basic inquired for by the Erie Forge & Steel Co. for delivery over a year for Navy work has been taken by a Valley furnace. The General Electric Co. is inquiring for about 2000 tons of either special malleable iron or special Bessemer iron, high in silicon, for Government work at its Erie plant for first-half and third-quarter delivery. The Navy Department is inquiring for 1200 tons of low phosphorus iron, 5600 tons of Nos. 1, 2 and 3 foundry, and 1400 tons of charcoal iron for the various Navy yards. A number of inquiries for Southern iron for the last half are pending, but most producers are refusing to quote. One maker is offering to take contracts subject to cancellation should the Government readjust prices to such a low basis that it could not afford to make the iron. We quote, f.o.b. Cleveland:

Bessemer.....	\$37.25
Basic.....	33.30
Northern No. 2 foundry.....	33.30
Southern No. 2 foundry.....	37.00
Gray forge.....	32.30
Ohio silvery, 8 per cent silicon.....	46.12
Standard low phosphorus, Valley furnace....	50.00

Finished Iron and Steel.—Shipments of steel by the mills have been practically suspended during the past few days because of weather conditions. New demand is not active, but a moderate volume of inquiry is coming out, principally for steel bars for Government work, these including one for 3000 tons and another for 1000 tons. Some tonnage in round and flat bars is being placed by a Toledo automobile manufacturer for gun carriages. There is practically no inquiry for steel for general uses and very little to be had except for Government work. The Morgan Engineering Co.; Alliance, is inquiring for 600 tons for crane girders. There is a moderate demand for light plates on which mills can make early deliveries. An Ohio shop is inquiring for 1200 tons of tank.

Plates.—The demand for sheets is holding up well. Sheets made of open hearth steel are hard to find for early delivery. The demand for bar iron, inactive for some time, has improved, some business coming from the railroads through repair work. We quote warehouse prices as follows: Steel bars, 4.03½c.; plates, 4.38½c.; structural material, 4.13½c.; No. 10 blue annealed sheets, 5.35c.; No. 28 black sheets, 6.35c.; No. 28 galvanized sheets, 7.60c.

Old Material.—The uncertainty as to the price of busheling scrap which existed after the Government fixed the maximum price at \$35 gross, or several dollars above the recent market quotations, has been largely dispelled by several sales to Cleveland consumers at prices ranging from \$31.25 to \$32, gross, for No. 1. A Cleveland mill has taken 2000 tons at these prices, and several dollars lower for No. 2. While consumers regard the Government maximum price altogether too high and out of line with other grades, particularly in comparison with heavy melting steel at \$30, they see no hope of a correction before April, at which time a readjustment of prices by the Government is possible, and they are contracting under as favorable terms as they can for requirements before April. As high as \$33 is being asked for busheling, but dealers are apparently no longer attempting to get the maximum price. Borings and turnings can be bought at considerably lower than the Government price for delivery to other shipping points, being offered

at \$19.50 and \$19.75 respectively for delivery in Brackenridge. Generally the market is very firm and Government prices are being maintained on other price-regulated grades. Grate bars and stove plate are up about \$1 a ton. The supply of scrap is still scarce, this being partly due to the car shortage. Dealers say that they could buy considerable material were they able to get railroad permits to ship it. The movement has been almost at a standstill for a few days because of weather conditions. Dealers quote f.o.b. Cleveland, as follows:

Per Gross Ton	
Steel rails	\$27.00 to \$28.00
Steel rails, rerolling	35.00
Steel rails, under 3 ft.	34.50 to 35.50
Iron rails	35.00
Iron car axles	45.00 to 46.00
Steel car axles	45.00 to 46.00
Heavy melting steel	30.00
Cast borings	20.00
Iron and steel turnings	20.00
No. 1 railroad wrought	35.00
Hydraulic compressed steel scrap ..	26.50 to 27.50
Carwheels	30.00
Relaying rails, 50 lb. and over ..	50.00 to 60.00
Agricultural malleable	24.00 to 25.00
Railroad malleable	30.00
Steel axle turnings	23.00 to 24.00
Light bundled sheet scrap	24.50 to 25.00
No. 1 cast	30.00
Per Net Ton	
No. 1 busheling (nominally)	\$31.00 to \$32.00
Railroad grate bars	20.00 to 21.00
Stove plate	20.00 to 21.00

Buffalo

BUFFALO, Jan. 14.

Pig Iron.—Blizzard conditions during the past two days have added tremendously to shipping difficulties and at some furnaces have resulted in almost complete blockade of inbound shipments of raw materials and outbound shipments of product. Production is seriously crippled. The furnaces of one producing interest are running at only half capacity on account of shortage of coke and coal, brought about to a large extent by the diversion of coal en route to Buffalo to New England points by order of the Government Fuel Administrator, notwithstanding the fact that 100 per cent of the contracts on which it is now working is for Government purposes, and it is endeavoring to conserve every ton of iron it is now producing for such use. Most furnaces are shipping only to cover pressing needs of contract customers and state they find as a rule that users are inclined to be accommodating and not insisting on full shipments due on contract where they can forego shipments not immediately required and allow some portion of their tonnages to go on obligations where the need is urgent. Although inquiry is large, covering tonnage lots of 2000 and 3000 tons in some instances, sales are extremely limited in amount, because of shortage in unsold capacity and for the reason that furnacemen are disinclined to book orders for distant delivery until time approaches nearer to the date set by the Government for possible revision of prices, April 1, and they ascertain what the price probabilities are at that time. Price schedules remain unchanged as follows, f.o.b. furnace, Buffalo:

No. 1 foundry	\$34.50
No. 2 X	33.50
No. 3 foundry	32.50
Gray forge	32.00
Malleable	33.50
Basic	33.00
Lake Superior charcoal, f.o.b. Buffalo ..	39.75

Finished Iron and Steel.—From current reports indications point to the fact that there will be a less tonnage of plates and structural material available for commercial uses during the first half of 1918 than had been anticipated, because of Government intimations that its construction and purchasing program for that period will largely exceed previous estimates and may require nearly the entire output of mills in these products; and further that there may be a curtailment of the supply of bars above 2½ in. available for commercial uses for the same reason. One of the definite inquiries before the market here this week is for 1000 tons of tank iron for war purposes and another is for 10,000 tons of bars, shapes and plates, in connection

with the Canadian Government's car building program. Agencies state that many inquiries for various classes of materials are being turned down because of inability of mills to take on and furnish by the time required. Included in this category was one order for 1000 tons of channels. Plants in the Buffalo district engaged in the manufacture of munitions, airplanes and other war supplies are manifesting some apprehension lest the diversion of coal from Buffalo to New England points by order of the Fuel Administrator may have a tendency to interfere with production on their contracts. The Buffalo Structural Steel Co. has a contract for a small tonnage of structural steel for factory addition for the Hewitt Rubber Co., Buffalo.

Old Material.—Conditions existing last week are still apparent; dealings are largely at a standstill owing to delays and uncertainties in freight movement seriously interfering with trade, though demand is plentiful. High winds and severe cold weather during the last two or three days have put a further handicap on shipments, and the New York Central embargo still in effect to points east of Syracuse holds down transactions in that section of the State. There is still a pronounced scarcity of all scrap materials, and the small total of business transacted has been at Government prices. We continue to quote the schedule prevailing for the past two weeks, which is as follows, per gross ton, f.o.b. Buffalo:

Heavy melting steel	\$30.00
Low phosphorus	40.00
No. 1 railroad wrought	35.00
No. 1 railroad and machinery cast ..	30.00
Iron axles	\$45.00 to 47.00
Steel axles	45.00 to 47.50
Carwheels	30.00
Railroad malleable	30.00
Machine shop turnings	18.00 to 18.50
Heavy axle turnings	26.00 to 27.00
Clean cast borings	19.00 to 20.00
Iron rails	37.00 to 38.00
Locomotive grate bars	20.00 to 21.00
Stove plate	22.00 to 23.00
Wrought pipe	26.00 to 27.00
No. 1 busheling scrap	26.00 to 27.00
No. 2 busheling scrap	17.00 to 18.00
Bundled sheet stamping scrap	19.00 to 20.00

St. Louis

ST. LOUIS, Jan. 14.

Pig Iron.—Despite the widely known difficulties as to supplies of pig iron and the improbability of filling even the most urgent orders unless they are for concerns with Government contracts, inquiries continue to come in not alone from the normal St. Louis territory, but also from outside points which seem to be searching desperately for material. These inquiries come from even Chicago and from eastern territory, partly in the hope that the local furnace may be able to help out. No favorable results have developed, as the local plant and the St. Louis representatives of outside furnaces are without material of any kind save the odd lots here and there left from furnace runs and somewhat out of the line in analysis. These are snapped up eagerly by desperate foundrymen who undertake modification by mixture to meet their needs. Inquiries pending but unsatisfied aggregate many thousands of tons, ranging individually down from 2000 tons to carloads. Sales were few and altogether of the off-analysis character during the week. Weather and traffic conditions are causing foundries to close, lacking supply.

Coke.—No business appeared during the week in coke, though there are numerous unsatisfied wants in the market. Ovens are unable and unwilling to attempt to meet even old customers' needs and forward contracts are not being considered because of the situation. Cars are unavailable for shipments and such shipments as are on the road have been held up by weather and general traffic conditions until many foundrymen are unable to operate.

Finished Iron and Steel.—Finished products are showing no new features. Between previously existing delays and then weather and traffic conditions, business, so far as that already under contract is concerned, is at a standstill. No new business is being placed at all. Movement out of warehouse, except for interference by the weather, is up to capacity. We quote for stock out

of warehouse as follows: Soft steel bars, 4.17c.; iron bars, 4.17c.; structural material, 4.27c.; tank plates, 4.52c.; No. 8 sheets, 5.47c.; No. 10 blue annealed sheets, 5.52c.; No. 28 black sheets, cold rolled, one pass, 6.52c.; No. 28 galvanized sheets, black sheet gage, 7.77c.

Old Material.—In the scrap market, dealers have still further adjusted themselves to the conditions created by the Government prices and are trying to do business on the commission basis wherever possible, as there still seems to be an indisposition on the part of original holders and of ultimate consumers to accept prices which will enable the dealers to do business in the old way. At that, there is comparatively little business moving in the aggregate and the pressure of need is believed by the dealers to be necessary before the consumers will be willing to really enter the market for any quantities of material. Railroad lists are few and far between at the moment and the car situation and the traffic conditions are aiding in rendering business difficult or impossible. We quote dealers' prices, f.o.b. consumers' works St. Louis industrial district, as follows:

Per Gross Ton	
Old iron rails.....	\$36.00 to \$36.50
Old steel rails, rerolling.....	34.50 to 35.00
Old steel rails, less than 3 ft.....	37.50 to 38.50
Relaying rails, standard section, subject to inspection.....	60.00 to 75.00
Old carwheels.....	29.50 to 30.00
No. 1 railroad heavy melting steel scrap.....	29.50 to 30.50
Heavy shoveling steel.....	27.50 to 28.00
Ordinary shoveling steel.....	26.50 to 27.00
Frogs, switches and guards cut apart.....	29.50 to 30.00
Ordinary bundled sheet scrap.....	22.50 to 23.00
Heavy axle and tire turnings.....	20.50 to 21.00
Per Net Ton	
Iron angle bars.....	\$35.50 to \$36.50
Steel angle bars.....	28.50 to 29.00
Iron car axles.....	45.50 to 46.00
Steel car axles.....	43.00 to 43.50
Wrought arch bars and transoms.....	41.50 to 42.00
No. 1 railroad wrought.....	30.50 to 31.00
No. 2 railroad wrought.....	29.50 to 30.00
Railroad springs.....	30.00 to 30.50
Steel couplers and knuckles.....	30.50 to 31.00
Locomotive tires, 42 in. and over, smooth inside.....	34.00 to 35.00
No. 1 dealers' forge.....	23.50 to 24.00
Cast iron borings.....	17.00 to 17.50
No. 1 busheling.....	24.50 to 25.00
No. 1 boilers, cut to sheets and rings.....	23.00 to 23.50
No. 1 railroad cast scrap.....	25.50 to 26.00
Stove plate and light cast scrap.....	20.50 to 21.00
Railroad malleable.....	26.00 to 26.50
Agricultural malleable.....	23.00 to 23.50
Pipes and flues.....	22.50 to 23.00
Railroad sheet and tank scrap.....	22.50 to 23.00
Railroad grate bars.....	19.00 to 19.50
Machine shop turnings.....	17.50 to 17.75
Country mixed scrap.....	20.50 to 21.00
Uncut railroad mixed scrap.....	23.50 to 24.00

New York

NEW YORK, Jan. 16.

Pig Iron.—Only a very limited tonnage of pig iron is obtainable for delivery the last half of this year, as most furnaces continue to decline to take on additional tonnages while so much uncertainty exists as to what prices will be after April 1. The feeling is general, however, that if furnaces were to open their books, they could rapidly sell all the tonnage which they would be able to make. Buyers, being familiar with the conditions, are not making any special effort to contract, but are asking to be kept informed as to when furnaces will be willing to sell. There has been very little accumulation of pig iron at docks or on cars in the New York territory and for this reason the so-called "cleaning up week" has not called for any special activity on the part of pig iron buyers and sellers. The Government is gradually tightening its policy as to issuing permits for exports, and it is now almost impossible to obtain a permit even for shipment to Canadian plants engaged in manufacturing munitions. For early delivery we quote as follows:

No. 1 X.....	\$35.25
No. 2 X.....	34.25
No. 2 Plain.....	33.75
No. 2 Southern (rail and water).....	\$38.75 to 39.25
No. 2 Southern (all rail).....	39.15 to 39.65
No. 2 X Virginia.....	37.00 to 37.25

Ferroalloys.—Extreme dullness pervades the ferromanganese market. Inquiries and sales are very few and comprise only small lots, usually for early delivery. The quotation is \$250, delivered, but one or two small

lots have been sold as low as \$240. Consumers seem well covered or are buying only from hand to mouth. It is a fact, however, that domestic production has fallen off about 4000 tons per month in the last two months, and that imports declined 3000 tons per month as an average in the last half of 1917. Added to these facts is the one that manganese ore imports are also on the wane. One representative here of British producers states that applications for licenses to ship 2000 tons to this country have been applied for recently. Another representative is able to offer some alloy for this year's delivery. Spiegeleisen is also quiet. About \$60, furnace, is asked for delivery in the first half. One small lot has been sold at \$62. The Canadian consumer who bought about 3000 tons for February delivery a week ago is figuring on about 3000 tons more for delivery in the latter part of the first half. The 50-per cent ferrosilicon market is unchanged from last week. Sales have been made at \$175 to \$180 per ton for January-February delivery, with \$185 to \$190 obtained for small lots. Electrolytic 10-per cent ferrosilicon is quoted at \$85 per ton, at which figure frequent sales are reported. Some other ferroalloys are quoted in this paragraph the first issue of each month.

Finished Iron and Steel.—With so many mills down or running at only a small percentage of capacity, the matter of new business is of no great concern. Generally domestic buyers continue to show indifference, in spite of the provision for revising contract prices under the agreement with the Government. In export lines, however, inquiries continue a-plenty, but they are not given much attention if licenses have not been obtained and particularly at this time if it is not clear that the railroads can handle the shipments. The way finished material is mounting up at mills is becoming a serious matter, particularly where mills have sold material as at the works and where they thus consider that the buyer must pay for the storage now that railroad transportation is out of the question. Some lower prices have been quoted for export, such as 3.75c. for steel bars and structural shapes and the domestic price for bar iron has also been named on export offerings, namely, 3.50c., Pittsburgh. On tank quality plates for shipment abroad 5c. has been named on lots of a few hundred tons. So chaotic is transportation that Atlantic shipments have recently been made three months behind schedule and the tie-up of mills has resulted in putting steel rails with the larger mills four months behind promised deliveries. Not a great bulk of structural steel for Government use is now looked for. The latest proposals cover a large machine shop near Atlanta, Ga., and a shell-loading and assembling plant near Perth Amboy, N. J. The contracts have been awarded for the nitrate plant near Sheffield, Ala., 5600 tons, all told, a part being given to the American Bridge Co. and a part to the Nashville Bridge Co., Nashville, Tenn., and the Converse Bridge & Steel Co., Chattanooga. Lewis F. Shoemaker & Co. are to build a 400-ton structure for a boiler house for the Potomac Electric Power Co. The Lukens Steel Co. is to furnish 8300 tons of plates for the British Commission. We quote mill shipments of steel bars at 3.095c., New York; shapes 3.195c., plates 3.445c. and bar iron 3.695c., New York. Out of store prices are 1c. higher, and to all must be added 3 per cent of the freight charge for the transportation tax.

Cast-Iron Pipe.—Much more activity is being shown on the part of private buyers. Fair tonnages are being sold and considerable business is pending. Cast-iron pipe companies have received numerous inquiries for pipe for export, but do not take them seriously, as they consider it would be loss of time to figure on this business owing to the impossibility of obtaining vessels in which to export the pipe. We quote the new prices: \$55.35, New York for 6-in. and heavier, and \$58.35 for 4-in.; \$65.35 for 3-in. and \$1 additional for class A and gas pipe.

Old Material.—Weather conditions are still very unfavorable for the shipment of scrap and there is little business being done, in spite of the fact that mills are anxious to buy. Prices are gradually being adjusted

in harmony with Government rulings on products not directly affected by the agreed prices. Methods of doing business are also being made to conform to Government ideas. Mills are showing more willingness to pay brokers a commission and there does not seem to be much likelihood of the brokers being eliminated. We quote prices of brokers as follows to New York producers and dealers, per gross ton, New York:

Heavy melting steel scrap for shipment to eastern Pennsylvania	\$27.80
Old steel rails (short lengths) or equivalent heavy steel scrap	26.80
Rerolling rails	32.80
Relaying rails	70.00
Iron and steel car axles	\$60.00 to 45.30
No. 1 railroad wrought	32.80
Wrought-iron track scrap	32.80
No. 1 yard wrought long	32.80
Light iron	9.00 to 10.00
Cast borings (clean)	17.80
Machine-shop turnings	17.80
Mixed borings and turnings	14.00 to 15.00
Wrought-iron pipe (1 in. minimum diameter), not under 2 ft. long	29.00 to 30.00

Dealers in New York and Brooklyn are quoting as follows to local foundries, per gross ton, but for delivery to cupola platforms of Brooklyn foundries about \$3 more is quoted:

No. 1 machinery cast	\$27.80 to \$28.50
No. 1 heavy cast (column, building materials, etc.)	23.00 to 24.00
No. 2 cast (radiators, cast boilers, etc.)	24.00 to 25.00
Stove plate	21.00 to 22.00
Locomotive grate bars	25.50 to 26.50
Malleable cast (railroad)	27.80 to 28.50
Old carwheels	27.80 to 28.50

Official Pamphlet of Iron and Steel Prices

The large supply of pamphlets recently printed by THE IRON AGE showing prices on iron and steel products, differentials and extras, as agreed upon by Government officials and committees of the American Iron and Steel Institute has been exhausted owing to the demand from all parts of the country. The American Iron and Steel Institute has, however, compiled all the information contained in that pamphlet with a large amount of additional matter, giving prices and recommendations agreed upon up to date. THE IRON AGE will send copies of the new pamphlet to subscribers who so request.

The compilation has been made with great care under the direction of the Committee on Steel and Steel Products of the Institute, of which E. A. S. Clarke, president Lackawanna Steel Co., is secretary, and H. H. Cook, of the American Iron and Steel Institute, is assistant secretary. The Institute pamphlet is the only official statement which has been or will be issued.

Our Half-Yearly Index

The index of THE IRON AGE for the past half year, July to December, inclusive, has been compiled and printed and is now ready for distribution. It will be forwarded promptly to those who have entered their names on our list as desiring it. Others who may have use for copies can secure them by addressing our Circulation Department.

Canadian Magnesite for Furnace Linings

The *Canadian Mining Journal* tells of the advance made by the magnesite industry in Quebec. The two principal operators, the North American Magnesite Co. and the Scottish Canadian Magnesite Co., are now making dead-burned magnesite, containing a suitable percentage of iron, for furnace lining. The magnesite is being burned in the cement kilns of the Canada Cement Co., at Longue Point, near Montreal, and at Hull, near Ottawa. The North American Magnesite Co. has obtained a lease on a promising property in Harrington township, and men are at work mining magnesite and storing it, awaiting winter roads to haul it to the railroad.

CORRESPONDENCE

Marking of Tools and Other Shipments to India

To the Editor: Will you give space to the following, which we believe is a matter of interest to a great many of your clients and friends among manufacturers of hardware, tools, etc.:

The customs laws of India require that the country of origin shall be clearly shown on any article passing through the Indian customs. By this we mean that not only must the outside cases and the cartons bear labels showing that the goods are made in the United States, but also where any article bears a brand, trademark, figure or number there must be an identification on such article showing that the goods are made in the United States. This identification can be shown either with the words giving the name of the city in which the goods are manufactured, followed by the letters U. S. A., as for instance, "New York, U. S. A., or with the words "Made in U. S. A." or "Made in America."

If the branding of an article is stamped in the article itself then the identification "Made in U. S. A.," etc., must also be stamped in the article. It is not sufficient to use a paper label on the article where the brand itself is stamped on the article.

We have been large shippers of tools and hardware to India for many years, and have been endeavoring to impress upon our friends the necessity of strictly following the requirements of the Indian merchandise marks act. We are glad to say that most of the manufacturers understand and are doing the needful, but nevertheless there are still a great many who do not appear to realize the absolute necessity of properly branding their goods in order to have them pass the Indian customs without question.

In the past six months many of our clients to whom we have shipped American tools and similar lines have been fined by the Indian customs on account of the merchandise marks act not being properly followed in the branding or stamping of the goods. We would therefore appreciate your publication of this letter.

DODGE & SEYMOUR, LTD.

NEW YORK, Jan. 12, 1918.

Bethlehem Steel Co. Changes

E. G. Grace, president of the Bethlehem Steel Co., Bethlehem, Pa., has announced the following changes in the organization:

Quincy Bent, at the present general manager of the Steelton plant, transferred to the central organization at Bethlehem to assume the duties of vice-president in charge of operations.

W. F. Roberts, vice-president in charge at Bethlehem, transferred to the Maryland plant as general manager. F. W. Wood, the present general manager at Maryland, retiring.

M. J. Scammell, general superintendent at the Maryland plant, will become the assistant general manager of the Maryland plant.

F. A. Robbins will succeed Mr. Bent as general manager of the Steelton plant, with E. F. Entwistle as assistant general manager. The Lebanon blast furnace properties will hereafter come under the direct supervision of John P. Brock, general manager of the American Iron & Steel Co. plant at Lebanon.

E. L. Essley Machinery Co. Changes

W. B. Anderson, formerly with the Badger-Packard Machinery Co., Milwaukee, Wis., has joined the selling force of the E. L. Essley Machinery Co., Chicago, succeeding C. M. Robertson, who resigned to enter business for himself. E. P. Essley, son of E. L. Essley, has been made general office manager of the company. E. L. Essley has devised and adopted a bonus system whereby salesmen will receive additional compensation based on their volume of sales. The company was recently obliged to enlarge its warehouse facilities.

Prices Finished Iron and Steel, f.o.b. Pittsburgh

Freight rates from Pittsburgh on iron and steel articles, aside from wrought iron and steel pipe in carloads, per 100 lb., New York, 19.5c.; Philadelphia, 18.5c.; Boston, 21.5c.; Buffalo, 11.6c.; Cleveland, 13.5c.; Cincinnati, 18.5c.; Indianapolis, 20c.; Chicago, 21.5c.; St. Louis, 27c.; Kansas City, 47c.; minimum carload, 36,000 lb.; St. Paul, 35.5c.; minimum carload, 36,000 lb.; Denver, 79c.; minimum carload, 36,000 lb.; Omaha, 47c.; minimum carload, 36,000 lb.; New Orleans, 30.7c.; Birmingham, 46c.; Pacific Coast, 75c.; minimum carload, 80,000 lb. To the Pacific Coast the rate on steel bars and structural steel is 90c., minimum carload, 40,000 lb.; and 85c., minimum carload, 50,000 lb. On wrought iron and steel pipe the rate from Pittsburgh to Kansas City is 40c. per 100 lb., minimum carload 46,000 lb.; to Omaha 40c., minimum carload 46,000 lb.; to St. Paul, 35.5c., minimum carload 46,000 lb.; Denver 79c., minimum carload 46,000 lb. A 3 per cent transportation tax now applies.

Structural Material

I-beams, 3 to 15 in.; channels, 3 to 15 in. angles, 3 to 6 in. on one or both legs, $\frac{1}{4}$ in. thick and over, and zebs, structural sizes, 3c.

Wire Products

Wire nails, \$3.50 base per keg; galvanized, 1 in. and longer, including large-head barb roofing nails taking an advance over this price of \$2, and shorter than 1 in., \$2.50. Bright basic wire, \$3.35 per 100 lb.; annealed fence wire, Nos. 6 to 9, \$3.25; galvanized wire, \$3.95; galvanized barb wire and fence staples, \$4.35; painted barb wire, \$3.65; polished fence staples \$3.65; cement-coated nails, \$3.40 base; these prices being subject to the usual advances for the smaller trade, all f.o.b. Pittsburgh, freight added to point of delivery, terms 60 days net, less 2 per cent off for cash in 10 days. Discounts on woven-wire fencing are 47 per cent off list for carload lots, 46 per cent for 1000-rod lots, and 45 per cent off for small lots, f.o.b. Pittsburgh.

Bolts, Nuts and Rivets

Large rivets \$4.65 base
1.16 in. x 6 in. smaller and shorter rivets, 45-10 per cent off list
Machine bolts h.p. nuts, $\frac{1}{2}$ in. x 4 in.:
Smaller and shorter, rolled threads..... 50-10-5 per cent off list
Cut threads 50-5 per cent off list
Larger and longer sizes 40-10 per cent off list
Machine bolts c.p.c. and t. nuts, $\frac{1}{2}$ in. x 4 in.:
Smaller and shorter..... 40-10 per cent off list
Larger and longer..... 35-5 per cent off list
Carriage bolts, $\frac{1}{2}$ in. x 5 in.:
Smaller and shorter, rolled threads..... 50-5 per cent off list
Cut threads 40-10-5 per cent off list
Larger and longer sizes 40-10 per cent off list
Lag bolts 50-10 per cent off list
Plow bolts, Nos. 1, 2, 3..... 50 per cent off list
Hot pressed nuts, sq., blank..... 2.50c. per lb. off list
Hot pressed nuts, hex., blank..... 2.30c. per lb. off list
Hot pressed nuts sq., tapped..... 2.30c. per lb. off list
Hot pressed nuts, hex., tapped..... 2.10c. per lb. off list
C.p.c. and t. sq. and hex. nuts, blank..... 2.25c. per lb. off list
C.p.c. and t. sq. and hex. nuts, tapped..... 2.00c. per lb. off list
Semi-finished hex. nuts:
 $\frac{1}{2}$ in. and larger 60-10-10 per cent off list
9/16 in. and smaller 70-5 per cent off list
Stove bolts 70-10 per cent off list
Stove bolts 2 1/2 per cent extra for bulk
Tire bolts 50-10-5 per cent off list
The above discounts are from present lists now in effect.
All prices carry standard extras.

Wire Rods

No. 5 common basic or Bessemer rods to domestic consumers, \$57; chain rods, \$65; screw, rivet and bolt rods and other rods of that character \$65. A tentative differential of \$10 per ton over soft rods for high carbon rods has been agreed upon.

Railroad Spikes and Track Bolts

Railroad spikes, 9/16 in. and larger, per 100 lb., \$2.90; track bolts, \$4.90. Boat spikes, \$5.25 per 100 lb., f.o.b. Pittsburgh.

Terne Plate

Effective Nov. 7 prices on all sizes of terne plates are as follows: 8-lb. coating, 200 lb., \$15 per package; 8-lb. coating, 1 C., \$15.30; 12-lb. coating, 1 C., \$16.75; 15-lb. coating, 1 C., \$17.75; 20-lb. coating, 1 C., \$19; 25-lb. coating, 1 C., \$20; 30-lb. coating, 1 C., \$21; 35-lb. coating, 1 C., \$22; 40-lb. coating, 1 C., \$23 per package, all f.o.b. Pittsburgh, freight added to point of delivery.

Iron and Steel Bars

Steel bars at 2.90c. from mill, and 4.50c. to 5c. from warehouse in small lots for prompt shipment. Refined iron bars, 3.50c. in carload and larger lots, f.o.b. mill.

Wrought Pipe

The following discounts are to jobbers for carload lots on the Pittsburgh basing card, as announced Nov. 5 by the Government on steel pipe, those on iron pipe being the same as quoted for some time:

Steel			Butt Weld			Iron		
Inches.	Black	Galv.	Inches.	Black	Galv.	Inches.	Black	Galv.
$\frac{1}{8}$, $\frac{1}{4}$ and $\frac{3}{8}$	44	17 1/2	$\frac{1}{8}$ and $\frac{1}{4}$	23	+4	$\frac{1}{8}$ and $\frac{1}{4}$	23	+4
$\frac{1}{2}$	48	33 1/2	$\frac{3}{8}$	24	+3	$\frac{3}{8}$	24	+3
$\frac{3}{4}$ to 3.....	51	37 1/2	$\frac{1}{2}$	25	10	$\frac{1}{2}$	25	10
			$\frac{3}{4}$ to 1 1/2.....	33	17	$\frac{3}{4}$ to 1 1/2.....	33	17
Lap Weld								
2.....	44	31 1/2	1 1/4.....	18	3	1 1/4.....	18	3
2 1/2 to 6.....	47	34 1/2	1 1/2.....	25	11	1 1/2.....	25	11
7 to 12.....	44	30 1/2	2.....	26	12	2.....	26	12
13 and 14.....	34 1/2	..	2 1/2 to 6.....	28	15	2 1/2 to 6.....	28	15
15.....	32	..	7 to 12.....	25	12	7 to 12.....	25	12
Butt Weld, extra strong, plain ends								
$\frac{1}{8}$, $\frac{1}{4}$ and $\frac{3}{8}$	40	22 1/2	$\frac{1}{8}$, $\frac{1}{4}$ and $\frac{3}{8}$	22	5	$\frac{1}{8}$, $\frac{1}{4}$ and $\frac{3}{8}$	22	5
$\frac{1}{2}$	45	32 1/2	$\frac{1}{2}$	27	14	$\frac{1}{2}$	27	14
$\frac{3}{4}$ to 1 1/2.....	49	36 1/2	$\frac{3}{4}$ to 1 1/2.....	33	18	$\frac{3}{4}$ to 1 1/2.....	33	18
2 to 3.....	50	37 1/2						
Lap Weld, extra strong, plain ends								
2.....	42	30 1/2	1 1/4.....	19	4	1 1/4.....	19	4
2 1/2 to 4.....	45	33 1/2	1 1/2.....	25	11	1 1/2.....	25	11
4 1/2 to 6.....	44	32 1/2	2.....	27	14	2.....	27	14
7 to 8.....	40	26 1/2	2 1/2 to 4.....	29	17	2 1/2 to 4.....	29	17
9 to 12.....	35	21 1/2	4 1/2 to 6.....	28	16	4 1/2 to 6.....	28	16
			7 to 8.....	20	8	7 to 8.....	20	8
			9 to 12.....	15	3	9 to 12.....	15	3

To the large jobbing trade an additional 5 per cent is allowed over the above discounts, which are subject to the usual variations in weight of 5 per cent. Prices for less than carloads are four (4) points lower basing (higher price) than the above discounts on black and 5 1/2 points on galvanized.

On butt and lap weld sizes of black iron pipe, discounts for less than carload lots to jobbers are seven (7) points lower (higher price) than carload lots, and on butt and lap weld galvanized iron pipe are nine (9) points lower (higher price).

Boiler Tubes

The following are the prices for carload lots, f.o.b. Pittsburgh, announced Nov. 13, as agreed upon by manufacturers and the Government:

Lap Welded Steel		Charcoal Iron	
3 1/2 to 4 1/2 in.....	34	3 1/2 to 4 1/2 in.....	12 1/2
2 1/2 to 3 1/4 in.....	24	3 to 3 1/4 in.....	+ 5
2 1/2 in.....	17 1/2	2 1/2 to 2 3/4 in.....	+ 7 1/2
1 3/4 to 2 in.....	13	2 to 2 1/4 in.....	+ 2 1/2
		1 1/2 to 1 3/4 in.....	+ 3 1/2

Standard Commercial Seamless—Cold Drawn or Hot Rolled

Per Net Ton		Per Net Ton	
1 in.....	\$340	1 1/2 in.....	\$220
1 1/4 in.....	280	2 to 2 1/2 in.....	190
1 1/2 in.....	270	2 1/2 to 3 1/4 in.....	180
1 3/4 in.....	220	4 in.....	200
		4 1/2 to 5 in.....	220

These prices do not apply to special specifications for locomotive tubes nor to special specifications for tubes for the Navy Department, which will be subject to special negotiation.

Sheets

Makers' price for mill shipments on sheets of United States standard gage in carload and larger lots, are as follows, 30 days net or 2 per cent discount in 10 days:

Blue Annealed—Bessemer	Cents per lb.
Nos. 8 and heavier.....	4.20
Nos. 9 and 10.....	4.25
Nos. 11 and 12.....	4.30
Nos. 13 and 14.....	4.35
Nos. 15 and 16.....	4.45

Box Annealed, One Pass Cold Rolled—Bessemer

Nos. 17 to 21.....	4.80
Nos. 22 and 24.....	4.85
Nos. 25 and 26.....	4.90
No. 27.....	4.95
No. 28.....	5.00
No. 29.....	5.10
No. 30.....	5.20

Galvanized Black Sheet Gage—Bessemer

Nos. 10 and 11.....	5.25
Nos. 12 and 14.....	5.35
Nos. 15 and 16.....	5.50
Nos. 17 to 21.....	5.65
Nos. 22 and 24.....	5.80
Nos. 25 and 26.....	5.95
No. 27.....	6.10
No. 28.....	6.25
No. 29.....	6.50
No. 30.....	6.75

Tin-Mill Black Plate—Bessemer

Nos. 15 and 16.....	4.80
Nos. 17 to 21.....	4.85
Nos. 22 to 24.....	4.90
Nos. 25 and 27.....	4.95
No. 28.....	5.00
No. 29.....	5.05
No. 30.....	5.05
Nos. 30 1/2 and 31.....	5.10

Metal Markets

The Week's Prices

		Cents per pound for early delivery					
		New York	Tin, New York	Lead		Spelter	
		Electro-lytic	New York	New York	St. Louis	New York	St. Louis
Jan.	Lake						
9.....	23.50	23.50	85.00*	6.70	6.55	7.87½	7.62½
10.....	23.50	23.50	85.00*	6.70	6.55	7.87½	7.62½
11.....	23.50	23.50	85.00*	6.75	6.60	7.87½	7.62½
12.....	23.50	23.50	85.00*	6.85	6.70	7.87½	7.62½
14.....	23.50	23.50	85.00*	7.00	6.85	7.87½	7.62½
15.....	23.50	23.50	85.00*	7.00	6.85	8.00	7.75

*Nominal.

NEW YORK, Jan. 16.

The markets are in all cases inactive and devoid of features. Copper is in fair demand at controlled prices. Tin is scarce and nominal for spot delivery. Lead is quiet, but has advanced. Spelter is dull but steady. Antimony is lower with demand poor.

New York

Copper.—The only news of any interest in a market, devoid of normal buying and selling coincident with Government control, is the apparently reliable rumor that an agreement has been reached between the Government and the Copper Producers' Committee whereby the present Government price of 23.50c. for copper will be unchanged up to May 1. There has been no official confirmation, but when the President makes the announcement the rumor will become a fact. A regular business is being done at the controlled price of 23.50c. for car loads and larger lots and of 24.67½c. for less than car loads. The U. S. Geological Survey's estimate of an output of refined copper in 1917, exceeding all records, despite strikes and other drawbacks, is regarded by some as a damper on efforts to raise the official price, although there are again rumors of agitation to this end.

Tin.—In the past week up to yesterday there had been large inquiry for tin for future shipment. The sales are reported as having been of considerable proportions, with nearly all sellers participating. On one or two days, late cables interfered decidedly with the dispatch of business, but the market for futures has been more active than in a long time. Yesterday, however, the entire market was quiet. An important resolution was passed by the New York Metal Exchange on Jan. 10, which places the burden of all risks on buyers and which will probably be a part of all contracts. There continues to be no spot market and the quotation is nominal at 85c. to 86c., New York. Shipments of Straits tin are still prohibited by England and efforts on this side to change this are still being made. Tin arrivals so far reported this month have been 460 tons, with 5500 tons reported afloat. The London market is higher with spot Straits quoted yesterday at £299 10s. per ton against £282 on Jan. 7.

Lead.—The leading producer has again advanced its price. The American Smelting & Refining Co. added ¼c. to its quotation on Friday, Jan. 11, and it now stands at 6.75c., New York. This is the second advance of the same amount in two weeks. There is some speculation as to what prompted this last advance, as there has been no large demand nor scarcity of metal. As a consequence of the advance referred to, the outside market is again higher at 7c., New York, or 6.85c., St. Louis. Demand, however, is light. The majority of sellers are not making any offerings and consumers appear to have no need to place orders. Transportation difficulties are interfering seriously with receipts of metal from the West and they are as bad, or worse, than they were a year ago.

Spelter.—Prime Western spelter for early delivery is generally quoted at 7.75c., St. Louis, or 8c., New York, but the market is very quiet. Some sales at these levels were made yesterday for delivery early in February, but there is no activity. In the past two or three weeks there has been some scalping of the prevailing quotation of 7.62½c., St. Louis, or 7.87½c., New York, but this tendency is reported as having lessened

in the last day or two. Shipments from the West are a source of considerable worry, especially since the recent storms and after a sale has been made there is no little anxiety as to how the order is to be filled in some cases. The report of the U. S. Geological Survey showing an estimated output in 1917 close to that of 1916, is variously regarded, but is generally not far from the expectations of those fully acquainted with the situation. The statistics of the *Engineering and Mining Journal*, however, show an output of nearly 18,000 tons more than the Government's, but it probably includes secondary spelter redistilled at regular plants. A surprising revelation is that stocks in hand or transit Jan. 1, 1918, were 50,000 to 60,000 tons, as compared with only 17,598 tons a year ago. The Survey's estimate places these at 50,107 tons on Jan. 1, 1918.

Antimony.—The 200 to 300 tons referred to last week as a possible purchase by the Government is said to have been quietly bought. The market is active and lower. Chinese and Japanese grades are quoted at 14c. to 14.25c. per lb., duty paid, New York, for prompt delivery. A lot of 50 tons was recently sold at 14c., New York.

Aluminum.—The market is inactive with No. 1 virgin metal, 98 to 99 per cent pure, quoted at 36c. to 38c., New York, for prompt delivery. There are rumors of possible Government price fixing.

Old Metals.—The market is quiet. Dealers' selling prices are nominally as follows:

	Cents per lb.
Copper, heavy and crucible (nominal).....	23.50
Copper, heavy and wire (nominal).....	23.50
Copper, light and bottoms.....	21.00 to 21.50
Brass, heavy.....	17.00 to 17.25
Brass, light.....	12.25 to 12.50
Heavy machine composition.....	24.00 to 24.25
No. 1 yellow rod brass turnings.....	13.50 to 14.00
No. 1 red brass or composition turnings.....	19.00 to 20.00
Lead, heavy.....	6.25
Lead, tea.....	5.00
Zinc.....	6.00

Chicago

JAN. 14.—Millions of pounds of Lake copper, which should be in transit to consumers, is on cars which cannot be moved because of the snow blocked tracks in Michigan, and it is predicted that melters may have to shut down inside of a week. Meanwhile copper is being bought and used at the usual rate in recent weeks and at 23.50c. for carloads and 24.67½c. for part carloads. Tin is scarce, with little business stirring and 85c. to 95c. is quoted. There is considerable inquiry for lead but not many sellers at the quoted prices of 6.70c. to 6.75c. Spelter is uninteresting at 7.75c. Antimony is dead at 16.50c. On old metals we quote buying prices for less than carload lots as follows: Copper wire, crucible shapes, 21c.; copper clips, 20c.; copper bottoms, 19c.; red brass, 19.50c.; yellow brass, 14.50c.; lead pipe, 5c.; zinc, 5c.; pewter, No. 1, 40c.; tin foil, 47.50c., and block tin, 55c.

St. Louis

JAN. 14.—Non-ferrous metals have been quiet because of absence of market activity due to weather, transport and other conditions. We quote, in car load lots, lead, 6.50c.; spelter, 7.75c., at the close to-day. In less than car load lots quotations to-day are as follows: Lead, 6.75c.; spelter, 8.50c.; tin, 90c.; copper, 25.12c.; Asiatic antimony, 18c. In the Joplin district, ore has been at about a standstill because the buyers could not ship out purchases already made. Producers have considerable quantities on hand and are therefore not inclined to add materially to their stores, while weather conditions have been against bringing ore to the surface. Zinc blende basis of 60 per cent metal, ranged from \$50 to \$70 per ton, with very little at the top price. The average for the week for the district was \$55 per ton. Calamine was quiet at \$32 to \$35 per ton basis range of 40 per cent metal, with the average for the week for the district at \$34 per ton. Lead ore, basis of 80 per cent metal, was quiet with \$75 as the very top price and little sold, while the average for the week for the district was \$73 per ton. We quote miscellaneous scrap metals, dealers' buying prices, as follows: Light brass, 10c.; heavy yellow brass, 14c.; heavy red brass and light copper, 19c.; heavy copper and copper wire, 20c.; pewter, 25c.; tin foil, 42c.; zinc, 5c.; lead, 5.50c.; tea lead, 5c.

IRON AND INDUSTRIAL STOCKS

Values Practically Stationary—Railroad Congestion and Fuel Shortage Prevent Strengthening of Industrials

Values showed but slight change the past week, although trading was fairly active. The President's statement of America's war aims was interpreted both favorably and unfavorably as a market influence, as it was believed to mean a shorter or a longer war. For the first part of the week it was the major influence affecting stock prices, but it was superseded toward the end by an adverse consensus of opinion based on the aggravated coal shortage and railway congestion, and prices fell off somewhat. Preferred steel stocks showed a slight advance, the larger companies an increase of less than one point. The more prominent metal-working industrials made somewhat greater advances; but common stocks of the steel companies fell off a bit, although the net change on sales of 1,066,800 shares of U. S. Steel, com., was only $\frac{1}{2}$ point.

The range of prices on active iron and industrial stocks from Wednesday of last week to Tuesday of this week was as follows:

Allis-Chalm. com. 17 $\frac{3}{4}$ -19 $\frac{3}{4}$	Int. Har. of N. J. com. 116-118
Allis-Chalm. pf. 73-75 $\frac{3}{4}$	Int. Har. of N. J. pf. 108
Am. Can. com. 34 $\frac{1}{2}$ -39	Int. Har. Corp. com. 65
Am. Can. pf. 90-90 $\frac{3}{4}$	Lacka. Steel 73 $\frac{3}{4}$ -74
Am. Car & Fdry. com. 68 $\frac{1}{4}$ -70 $\frac{3}{4}$	Lake Sup. Corp. 12 $\frac{1}{2}$ -12 $\frac{3}{4}$
Am. Car & Fdry. pf. 107-109	Midvale Steel 44 $\frac{1}{2}$ -47 $\frac{1}{2}$
Am. Loco. com. 53 $\frac{1}{2}$ -57	Nat.-Acme 26 $\frac{3}{4}$ -28 $\frac{1}{2}$
Am. Loco. pf. 95 $\frac{1}{2}$ -96	Nat. En. & Stm. com. 39 $\frac{1}{4}$ -42 $\frac{1}{2}$
Am. Radi. com. 250-255	N. Y. Air Brake 117 $\frac{1}{4}$ -121
Am. Ship com. 86 $\frac{1}{2}$ -89 $\frac{1}{2}$	Pitts. Steel p. 98
Am. Ship pf. 87	Press. Steel com. 60-61 $\frac{1}{2}$
Am. Steel Fdries. 58-61 $\frac{1}{4}$	Ry. Stl. Spr. com. 47-50 $\frac{1}{2}$
Bald. Loco. com. 56 $\frac{1}{4}$ -60 $\frac{3}{4}$	Ry. Stl. Spr. pf. 96
Bald. Loco. pf. 97	Republic com. 72 $\frac{3}{4}$ -78 $\frac{1}{2}$
Beth. Steel com. 74 $\frac{1}{4}$ -79 $\frac{3}{4}$	Republic pf. 94 $\frac{1}{2}$ -95
Beth. Stl. Cl. B. 72 $\frac{3}{4}$ -80 $\frac{3}{4}$	Sloss com. 40-41 $\frac{1}{2}$
Beth. Steel pf. 81	Superior Steel 34 $\frac{1}{2}$ -38
Case (J. I.) pf. 75-76	Un. Alloy Steel 1st pf. 37-38 $\frac{1}{4}$
Central Fdry. com. 33 $\frac{1}{2}$	U. S. Pipe com. 11 $\frac{3}{4}$ -12 $\frac{1}{2}$
Cent. Fdry. pf. 44-45	U. S. Steel com. 88 $\frac{3}{4}$ -96
Char. Iron com. 7 $\frac{1}{2}$	U. S. Steel pf. 108 $\frac{1}{4}$ -109 $\frac{3}{4}$
Chic. Pneu. Tool. 48-51	Va. I. C. & Coke 51 $\frac{1}{2}$ -53 $\frac{1}{2}$
Colo. Fuel 35-36	Westg. Electric. 39 $\frac{3}{4}$ -41 $\frac{1}{4}$
Cruc. Steel com. 52-55 $\frac{1}{4}$	
Gen. Electric. 127 $\frac{3}{4}$ -136	
Gt. No. Ore Cert. 25 $\frac{1}{4}$ -27 $\frac{1}{4}$	
Gulf States Steel. 86-90	

Dividends

The Crocker-Wheeler Co., quarterly, 2 per cent on the common and 1 $\frac{3}{4}$ per cent on the preferred, payable Jan. 15.

The Dominion Steel Corporation, Ltd., quarterly, 1 $\frac{3}{4}$ per cent on the preferred, payable Feb. 1.

The Kelsey Wheel Co., quarterly, 1 $\frac{3}{4}$ per cent, payable Feb. 1.

Industrial Finances

The Ohio Iron & Steel Co., which operates Mary blast furnace at Lowellville, Ohio, has a capital stock of \$2,000,000, all common. The market value of this stock is now said to be around \$300 per share, but it has sold below \$200 per share since the war started. The company paid in 1917 20 per cent in dividends, and an extra stock dividend of 20 per cent, made up of securities held by the company in other concerns. In addition to owning Mary blast furnace the company also has valuable iron ore holdings, coal, coke and railroad properties. Robert Bentley is president.

The Donner Steel Co., Abbott Road, Buffalo, has increased its capital from \$9,000,000 to \$11,000,000.

The Liberty Steel Co., Warren, Ohio, has filed notice of increase in its capital from \$500,000 to \$650,000.

The puddling furnaces of the Logan Iron & Steel Co., Burnham, Pa., were closed temporarily on Dec. 20, due to coal shortage.

The Sloss-Sheffield Steel & Iron Co., Birmingham, Ala., is planning for the early operation of its Hattie Ensley Furnace No. 2, under daily capacity of about 300 tons. Repairs made at the furnace have cost over \$300,000.

The directors of the Crocker-Wheeler Co., electrical machinery manufacturer, Ampere, N. J., have announced that the regular dividends of 1 $\frac{3}{4}$ per cent on the preferred and 2 per cent on the common stock would be paid for the last quarter of 1917.

The Cleveland-Cliffs Iron Co., Cleveland, has declared an extra dividend of 5 per cent in addition to its usual quarterly dividend of 2 $\frac{1}{2}$ per cent.

The Crucible Steel Company of America, Pittsburgh, has called and paid off all the outstanding bonds of the Crucible Coal Company and the Halcomb Steel Company, subsidiary interests.

Dominion Bridge Co. Report

The profits of the Dominion Bridge Co., Montreal, for the year ended Oct. 31 show a sharp contraction, the net available for distribution amounting to \$1,186,436, against \$2,762,289 in 1916, a decrease of \$1,575,844, or 57 per cent. The percentage earned on capital stock was 18.2, as against 42.5 for the former year. The favorable feature of the year's business, namely, the successful completion of the Quebec Bridge contract, does not enter as a factor in the present report. That it provided a very substantial offset to the decline in profits in other directions is made apparent in the report of President Phelps Johnson, who states: "On the acceptance of the bridge by the government a distribution of profits should be made and your company will then receive about \$1,500,000 as its share of the profits accumulated in the seven years the work has been in progress and will also benefit by the return of a good portion of the cash capital invested in the work." This is the first official statement from the company as to the probable earnings from the bridge contract and will be noted with interest by the shareholders. With regard to munition contracts, which have been the main basis of the company's activities in the past couple of years, it is stated that "the prospects for remunerative business in this line not being encouraging, your officers have been looking in other directions for work for your shops and have secured contracts for marine engines and boilers totaling in value about \$1,170,000."

Driver-Harris Co. Employees' Benefits

The Driver-Harris Co., Harrison, N. J., distributed on Jan. 1 among employees who had been with the company six months, \$500 life insurance policies. A similar distribution will be made to other employees as they reach the six months' service period. The company's extra wage distribution this year was increased by 1 per cent over what was paid in previous years. The distribution is based on salaries earned and terms of service and is made twice each year. The percentage begins at 6 for employees who have been with the company six months and increases $\frac{1}{2}$ per cent for each additional year of continuous service. The distribution on Jan. 1 amounted to about \$15,000. The fourth annual dinner of the company was held at the Down Town Club, Newark, Dec. 28, and was attended by about 150 persons, including the entire office staff, heads of operating departments and veteran employees.

Steel Industry Helping to Improve Transportation

In response to a request on the part of the assistant director general of railroads, A. H. Smith, who is president of the New York Central Lines, the steel committee of the American Iron and Steel Institute met in New York, Jan. 15, and appointed a sub-committee on traffic conditions. This committee is made up of twelve traffic managers of steel companies and is headed by A. G. Young, traffic manager of the American Sheet & Tin Plate Co., with quarters at 71 Broadway.

PERSONAL

Arthur R. Wilcox has been appointed president of Abendroth Brothers, pipe manufacturers of Port Chester, N. Y., to succeed R. Jay Walsh, who died Dec. 7. John M. Ellis has been elected treasurer and Charles I. Smith, secretary. Other officers are C. B. Elmer, vice-president, and John W. Diehl, assistant treasurer.

Charles Spalding, for 12 years with the Gisholt Machinery Co., has been made general manager of the Amalgamated Machinery Corporation, 72 West Adams Street, Chicago.

George S. Thompson, the Vulcan Steel Products Co.'s representative in Paris, was recently appointed to the purchasing board of the American Expeditionary Forces in France. He has been assigned particularly to the handling of steel matters.

John Calder has been made vice-president and general manager of the Aero Marine Plane & Engine Co., Keyport, N. J.

Carl G. Barth, consulting management engineer, Philadelphia, has been given a special commission in the matter of extending costs investigation for the Watertown Arsenal, Watertown, Mass.

Walter Rautenstrauch, professor of mechanical engineering at Columbia University, addressed a meeting in New York of the American Society of Mechanical Engineers on the evening of Jan. 8. He dwelt in particular on the industrial service movement such as is carried on by the National City Bank, New York, under the direction of Ferdinand C. Schwedtmann.

D. L. Derrone, formerly identified with the Canada Cement Co., Ltd., Montreal, engaged in the manufacture of munitions, and later on gun forgings machine work for the Amalgamated Machinery Corporation, Chicago, is now works manager of Winslow Brothers Company, Chicago, specialists in architectural iron and bronze work for buildings, but engaged in making 6-in. shells.

A. F. S. Blackwood, who was president of the Blackwood Steel Foundry Co., Springfield, Ohio, prior to its absorption by the Ohio Steel Foundry Co., has disposed of his interests and resigned from the latter company.

William H. Matthai, secretary of the National Enameling & Stamping Co., and manager of the Baltimore plant, was elected president of the Merchants and Manufacturers' Association of Baltimore at a meeting held on Jan. 10.

R. C. Perrott, secretary of the American Clay Working Machinery Co., Bucyrus, Ohio, has been appointed manager of the company's interests in that city. He retains his position as secretary. W. W. Wallace, of Chicago, has been made consulting engineer of the company with headquarters in Bucyrus.

H. L. Farish, formerly purchasing agent of the Abbott Corporation, automobile builder, Cleveland, has been made secretary of the Founders' Association of Cleveland, with office at 1025 Guardian Building, succeeding H. L. Gaddis, who has resigned to take charge of the employment and accident department of the Great Lakes Engineering Works, Detroit.

Robert L. Lake, in charge of purchasing and traffic regulation for the De La Vergne Machine Co., New York, has resigned to accept the position of purchasing agent at the Alexandria, Va., plant of the United States Steamship Co., Inc.

Charles A. Rowe, nephew of Wallace Rowe, president Pittsburgh Steel Co., has resigned his connection at Chicago with this company to become assistant purchasing agent of the American International Steel Corporation, 120 Broadway, New York, the subsidiary of the American International Corporation. A. H. Hudson is purchasing agent.

John Hayes Smith, consulting engineer, Milwaukee, has closed his office to accept the position of assistant engineer to the Public Service Commission of Pennsylv-

vania. Mr. Smith's early experience was with the Westinghouse Electric & Mfg. Co., and he was editor of the *Electrical Age*, New York, for four years. Since that time he has been in Milwaukee.

R. T. Gladstone, master mechanic of the Washington Steel & Ordnance Co., Washington, has resigned to take the position of general superintendent of the Steel Products Co., Huntington, W. Va.

E. H. Williams, general superintendent of the McKeefry Iron Co., Leetonia, Ohio, has been commissioned a major in the Engineers' Reserve Corps, U. S. A., and ordered to active duty at Camp Lee.

Pickands, Mather & Co., Cleveland, announce that William McLauchlan has retired from the firm and his son, Jay C. McLauchlan, who represented that firm in Michigan territory for many years before going into the home office in 1917, has been admitted to partnership.

Frederick W. Wood has retired as general manager of the Sparrows Point, Md., plant of the Bethlehem Steel Co. The following formal announcement was made at the plant: "F. W. Wood has announced his retirement from the position of general manager of the Sparrows Point plant of the Bethlehem Steel Co. and that W. F. Roberts, of Bethlehem, would succeed him as general manager of the corporation. Mr. Wood has been continuously engaged in the manufacture of steel and in shipbuilding for 40 years and his many friends will rejoice in knowing that he is to enjoy a well-earned relaxation from the exacting duties as chief executive of the great works over which he has presided since they were started in 1887. Mr. Wood's relations with the Bethlehem Steel Co. will continue in an advisory capacity. Mr. Roberts is one of the youngest men of the Bethlehem staff, whose ability and energy have helped to place the great plant in the commanding position it occupies. He is assured a hearty Maryland welcome."

Guy E. Tripp, New York, chairman of the board of directors of the Westinghouse Electric & Mfg. Co., has been placed in charge of the Production Division of the Ordnance Department at Washington, the War Department announces. The function of this division is to follow up, supervise and stimulate the production of all articles purchased by the Ordnance Department.

B. E. Goodfellow, assistant superintendent of the Donner Steel Co., Buffalo, who recently enlisted in the Aviation Corps of the United States Army, has been stationed at the Kelley's Field training camp at San Antonio, Tex.

Milton Rupert has been elected vice-president and assistant treasurer of the R. D. Nuttall Co., Pittsburgh, manufacturer of gears, pinions and trolleys. Mr. Rupert has been connected with this company a number of years, holding various positions. In 1903, he was appointed head of the general offices, being directly in touch with all office matters and also manufacturing operations. Later, Mr. Rupert was assistant to the president and general manager. In his new position, he will have charge of sales and manufacturing operations.

Harry C. Graham, president of the Graham Nut Co., Pittsburgh, has been elected a director of the Diamond National Bank of that city, succeeding James P. McKinney, deceased.

Louis J. Voyer, for several years connected with the Philadelphia office of the American Sheet & Tin Plate Co., has resigned to become assistant general manager of sales of the Liberty Steel Co., now building a 10-mill tin plate plant at Warren, Ohio.

Thomas Sadler, for some years assistant manager of the New Castle, Pa., works of the American Sheet & Tin Plate Co., has been transferred to the Shenango works, also in New Castle, and has been made assistant manager and general superintendent of the hot mills. J. Fankhouser has been transferred from the Gary, Ind., works to succeed Mr. Sadler at the New Castle works.

William E. Jones, formerly manager of the Ohio Tool Co., Charleston, W. Va., which recently sold its plant, has returned to Columbus, Ohio.

Paul Kreuzpointner, Altoona, Pa., has been engaged by the National Association of Corporation Schools to visit industrial works in various parts of the country to

secure information for the report of the association's committee on employment which will be presented at the sixth annual convention at Chicago in the first week in June. Mr. Kreuzpointner is now pursuing this investigation in the Eastern States.

T. C. Allen has resigned as assistant comptroller of the Remington Arms Co. and the Eddystone Munitions Co. to become comptroller of the Tacony Ordnance Corporation, Philadelphia.

Thomas J. Foster has been elected chairman of the board of directors of the National Bridge Works, Long Island City, N. Y., and he is succeeded as president by H. B. Roger, general manager of the company. Mr. Foster has left for a sojourn in Florida until April 30.

The Jackson Munitions Co., Jackson, Mich., has been organized with \$500,000 capital by leading manufacturers of the city and has Government contracts for 75 and 155-mm. shells. The work is to be done largely in plants already operating. O. B. Hayes is president and D. G. Kimball vice-president.

Andrew G. Young, traffic manager American Sheet & Tin Plate Co., has been appointed assistant to A. H. Smith, assistant director general of railroads, with headquarters at 71 Broadway, New York. He is chairman of the sub-committee on traffic conditions of the American Iron and Steel Institute.

Workmen Charged with Delaying Ships

At a meeting of shipbuilders and shipworkers in Philadelphia, called by the National Shipbuilding Labor Adjustment Board, to settle differences over working conditions, a split arose over the suggestion of C. J. Lee, representing the Pusey & Jones Shipbuilding Co., Wilmington, Del., that armed guards be placed in all shipyards as a means of speeding up workmen and impressing them with urgent need of ships for the Government. Charles Scott, advocate for the shipworkers, said: "We are living in America, not in Russia. The workmen would not stand for such a thing."

Shipbuilders are trying to find a solution of one of their greatest troubles, namely, the disposition of shipworkers to "lay off" work one, two or three days a week, as suits their fancy. Mr. Lee said:

The men are loafing. We are five months late in turning out Government work, and this is largely because the men will not work. We have tried our best to make them understand the importance of the shipbuilding program in the general scheme for prosecuting the war, but still they do not see it. I think the Government should give the shipyards military protection. The presence of uniformed men in the yards would act as a constant reminder of the fact that the work we are doing is for the war. It would keep the men from lagging behind as they do now.

Advisory Labor Council

Popular demand for a national labor administrator was in effect granted this week with the appointment by Secretary of Labor Wilson of six men and one woman, to be known as an advisory council, to assist him. Representatives of employers are Waddill Catchings, president of the Sloss-Sheffield Steel & Iron Co., Birmingham, Ala., and of the Platt Iron Works, Dayton, Ohio, and A. A. Landon, general manager of the American Radiator Co., Buffalo. The representatives of employees are John B. Lennon of Illinois, treasurer of the American Federation of Labor, and John J. Casey of Pennsylvania, former member of Congress. Dr. L. C. Marshall of the University of Chicago, economist, is also appointed to the board. The one woman is Agnes Nestor, Chicago, president of the Woman's Trade Union League.

An unusual calendar has been produced by the Stamford Rolling Mills Co., Springdale, Conn. Each monthly sheet is about 10 in. square with spaces for memoranda in the rectangles for each day and interleaving the date sheets are blotters for ink memoranda and likewise covering the memoranda when such may be desirable. The calendar has been copyrighted by W. D. Morgan of the company.

Pittsburgh and Nearby Districts

The Traffic Club of Pittsburgh, through its board of governors, has protested to Director General McAdoo against the proposed discontinuance of foreign line traffic agencies in Pittsburgh, of which there are nearly 100. Similar action has been taken by some of the largest shippers in the Pittsburgh district.

W. D. Berry, for five years superintendent of the New Brighton, Pa., plant of the Keystone Bronze Co., Pittsburgh, has resigned, and contemplates building a plant, on a site not secured, in the vicinity of Beaver, Pa., for the manufacture of brass, bronze and copper castings for blast furnaces and rolling mills, also railroad journal bearings.

Up to Jan. 1, the American Sheet & Tin Plate Co., Pittsburgh, had a total of 1417 men in various branches of the military service of the United States.

A joint meeting of the Pittsburgh sections of the Association of Iron and Steel Electrical Engineers and the American Institute of Electrical Engineers will be held in the Hotel Chatham, Pittsburgh, on Saturday evening, Jan. 19. Papers will be presented on the Generation, Distribution and Consumption of Power, by B. W. Gibson and B. A. Cornwell of the Ohio Works of the Carnegie Steel Co., Youngstown, Ohio, for the first named association, while the subject of "Methods of Power Factor Correction" will be discussed for the latter named organization by R. A. McCarty, power engineer of the Westinghouse Electric & Mfg. Co., East Pittsburgh.

The Buffalo, Rochester & Pittsburgh Railroad has applied to the Interstate Commerce Commission for permission to increase, by 15 per cent, the rates on iron and steel articles from the Pittsburgh district to Buffalo, N. Y.

The Marshall Foundry Co., Pittsburgh, has recently taken orders for very large quantities of ingot molds, some of which will weigh as much as 87 tons each. The company is installing in its ingot mold foundry at Josephine, Pa., a 100-ton crane to be used in handling these heavy molds.

The Pittsburgh Steel Company, Union Arcade Building, Pittsburgh, has declared a stock dividend of 20 per cent, and in the past two years this concern has paid 56 per cent deferred dividends on its common stock.

The Pittsburgh Export Co., Pittsburgh, dealer in iron and steel products, has removed to its new offices on the twelfth floor of the First National Bank Building, where a private office has been provided for the use of out of town visitors, who are invited to make this their headquarters when in Pittsburgh.

Will Add More Mills

The Liberty Steel Co., which is building an 8-mill tin plate plant at Warren, Ohio, has made plans for four more mills, and it is likely these four more mills will be built during this year. The company will make only bright plate, and most of its product for a time at least, will be used in making food containers. It expects to start the eight mills not later than April next. The heating and annealing furnaces will be fired with pulverized coal, the installation of equipment for this purpose being made by the Bonnot Co. of Canton, Ohio.

Industrial Building Burned

The Industrial Building, Indianapolis, burned Jan. 13, completely destroying the shops of the Ott Grinder Co. and the W. K. Millholland Machine Co., makers of turret screw machines. Several other manufacturers were put out of business. The two companies named immediately took steps to secure machinery wherewith to resume business as speedily as possible. Both were filled with work.

Various engine stops and methods of guarding steam engines and flywheels are made the subject of bulletin No. 9 of the series under the head of "Safe Practices," issued by the National Safety Council, Continental and Commercial Bank Building, Chicago.

OBITUARY

John Riddell



JOHN, RIDDELL

JOHN RIDDELL, mechanical superintendent of the Schenectady-Works of the General Electric Co., died in Schenectady, Dec. 31, 1917. He was born in Ireland in 1852. At the age of 12 or 13 years, in Jersey City, he started as an apprentice in a jobbing machine shop. His first association with the electrical business was with the Daft Electrical Co., where he did experimental mechanical work. In 1887 he entered the employ of the Thomson-Houston Electric Co., at Lynn, Mass. In 1888 he became foreman of the railroad motor shop and was recognized as one of the leading mechanical experts at the time the General Electric Co. was formed in 1892.

Mr. Riddell moved to Schenectady in 1895, and shortly after his arrival was appointed mechanical superintendent. In this important position he designed special machine tools for increasing the production of the machine shops and also for carrying on the many special processes involved in the manufacture of mechanical tools. Many of these machines were built by the General Electric Co. under his direction. In the sense that Mr. Riddell could obtain large outputs from machine shops with a minimum cost, he might well be termed a manufacturing economist. He was responsible for the location of machines and machine tools and his advice and opinion were sought in regard to such manufacturing problems as the routing of the materials from the time the raw materials were received until the finished product was ready for shipment.

The records of the United States Patent Office show that 37 patents were taken out in the name of John Riddell. Among his notable achievements in the various works of the General Electric Co. is a boring mill of 60-ft. swing, the largest in the world at the time. Another is a bucket-cutting machine for large steam turbines developed in 1902. He also built a field coil winding machine which was adopted both in Lynn and Schenectady.

CHRISTOPHER W. LEVALLEY, founder and chairman of the board of directors of the Chain Belt Co., died suddenly of heart failure at his home in Milwaukee, Jan. 4. Mr. Levalley was born at Manchester, Conn., in April, 1835, receiving his education in the schools there. When 14 years old he moved to Hartford, Conn., where he served an apprenticeship in a machine shop. At the outbreak of the civil war he enlisted in the army. Following the war he went to St. Paul as superintendent of the St. Paul Harvester Co., later becoming general manager. It was at this time that he saw the necessity of a positive drive for harvesting machinery. In 1891 he went to Milwaukee, where he established the Chain Belt Co. In 1907 Mr. Levalley conceived the idea of driving a concrete mixer with a steel chain, using a cast semi-steel drum. He invented what was known then as the chain belt mixer, which name was later changed to Rex mixer. From 1891 until 1916 he was president and general manager of the Chain Belt Co. In 1916 he was elected chairman of the board of directors and held this position up to the time of his death. He was also interested in the C. O. Bartlett & Snow Co., Cleveland, and the Federal Malleable Co., Milwaukee.

JOSEPH HOBSON, one of the most eminent civil engineers in Canada, died recently at his home in Hamilton, Ont., at the age of 84. He was born near Guelph, Ont., in 1833, received his education for his profession in

Toronto and while a young man joined the firm of Gzowski & McPherson, who built the Grand Trunk Railway between Toronto and Guelph. In 1870 he succeeded Sir John Kennedy as chief engineer of the Great Western Railway, and when that company amalgamated with the Grand Trunk Railway he was chosen as chief engineer of the Grand Trunk West of Toronto. In that capacity, he had charge of the construction of the International bridge from Buffalo to Fort Erie and the replacement of the old Suspension bridge below Niagara Falls. For ten years he held the position of chief engineer for the Grand Trunk, from 1896 to 1907. Since the latter date he has been consulting engineer. In his career two great achievements stand out for which his name will long be remembered—the railway tunnel under the St. Clair River near Sarnia and the rebuilt Victoria bridge over the St. Lawrence River.

JOSIAH A. MCKEE, vice-president and treasurer of the Merchant & Evans Co., died at his home in Philadelphia, Dec. 18, after a brief illness, aged 73 years. He was born in Columbus, Ga., but moved at an early age to Philadelphia, where he was long identified with the banking business, having been cashier of the Tradesmen's National Bank for many years prior to becoming treasurer of the Merchant & Evans Co. in 1896. Mr. McKee was well known to the metal trades throughout the United States, and was active in every movement having for its object the betterment of trade conditions and the creating of a higher standard of business methods. For several years he was chairman of the Metal Branch of the National Hardware Association of the United States, and was also at one time president of the Philadelphia Branch of the National Association of Credit Men. At the time of his death Mr. McKee was also secretary and treasurer of the Globe Automatic Sprinkler Co.

CHARLES S. FOLLER, aged 41, sales manager of the Union Spring & Mfg. Co., Pittsburgh, was drowned in the Monongahela River on Saturday evening, Dec. 29. For five years he was connected with the American Locomotive Co. at Pittsburgh. He was a member of the Union Club, the Pittsburgh Athletic Association, the Engineers' Society of Western Pennsylvania, the American Society of Mechanical Engineers, the American Society for Testing Materials, the Railway and the Fellows clubs.

THOMAS R. TOBIN, aged 36 years, superintendent of the Warren Steel Casting Co., St. Louis, died of pneumonia Dec. 21. Mr. Tobin came from a family of foundrymen, his father, now retired, having spent most of his life in the business, and his brother also is an experienced foundryman. He commenced work with the Warren Steel Casting Co. nearly seven years ago as moulder and by his ability and hard work was advanced to the position of superintendent.

L. J. COHEN, of L. J. Cohen & Co., scrap dealers, St. Louis, was killed on Christmas Day when an automobile in which he was riding with his partner, William Lewin, was struck by a railroad train. Mr. Lewin was seriously injured. Mr. Cohen was 45 years old and had been identified with the scrap business for many years. He was interested also in the Cohen-Schwartz Rail & Steel Co. and the National Smelting & Refining Co., both of St. Louis.

CAPT. THOMAS WILLIAM FINCH, JR., 30 years old, United States Army, president Columbia Steel & Shafting Co., Pittsburgh, died on Dec. 21 at a hospital in New York, where he had gone for an operation. He was a grandson of Gen. William Tecumseh Sherman of Civil War fame and a son of the late Thomas William Finch, who retired in 1913 from the presidency of the company and was succeeded by his son.

WILLIAM A. MCADAMS died at his home in Bay Shore, N. Y., on Jan. 11, aged 68 years. He was born in Boston, on Nov. 15, 1849, and resided in Brooklyn for a number of years, where he was a member of the firm of John McAdams & Sons. He was a pioneer in the invention and manufacture of alloys of aluminum, the best known of these being McAdamite.

GEORGE T. ROBINSON, who until 1897 was president of the Robinson-Rea Mfg. Co., one of the first steel

foundries in the Pittsburgh district, died at his home in Pittsburgh, Dec. 24, aged 80 years. He was a member of the Ninth Pennsylvania Reserves during the Civil War. He is survived by a widow, three sons and two daughters.

JOHN ERICKSON, aged 63, formerly superintendent of the machine shops of the National Tube Co., McKeesport, Pa., and later of the Monongahela Tube Co., Wilson, Pa., died recently at his home in Wilson. Mr. Erickson was born at Skaraborgland, Sweden, and came to this country when a very young man.

FRANK L. BROWN, president of the Ransome Concrete Mixing Machinery Co., San Francisco, died in New York Jan. 1. His death was due to heart failure. Mr. Brown was born in Kenosha, Wis., March 4, 1859. He went to San Francisco from Portland, Ore., in 1894.

WILLIAM A. MERRIAM, vice-president of the United States Realty Co., and vice-president of the George A. Fuller Contracting Co., died Jan. 7 from heart disease at his home in New York. He was born in Chicago 54 years ago and had lived in New York for eight years.

FREDERICK A. HOUDLETTE, president of Houdlette & Son, Inc., Boston, Mass., dealer in iron and steel, died Dec. 17, aged 56 years. He had been at one time manager of the Bay State Iron Works.

WINFIELD SCOTT SIMS, inventor of a dynamite gun and of electrical light and power appliances, died Jan. 7 at Newark, N. J.

HENRY BELIN, JR., president of the Wyoming Shovel Works, Wyoming, Pa., died Dec. 25.

The United States Trade with New Zealand

The changes in trade routes occasioned by the great war have greatly favored the export business of the United States. The National Bank of Commerce in New York has issued a statement which discusses the development of American trade with New Zealand, from the beginning of 1915 until the present. In iron and steel products, including hardware, American sales are increasing. The United States supplies 83 per cent. of the trade in barbed-wire, and the greater part of the trade in ordinary fencing-wire. Americans have also been successful in selling a very good line in pliers, which formerly came from Germany. Americans have also entered the trade in sheep's ear markers, a line in which British manufacturers have failed to make good. The whole situation as to hardware is very favorable to the United States.

As to machinery, the British trade commissioner in New Zealand reports that the British have been out-sold by the United States for two definite reasons: First, that English manufacturers have not kept in touch with the development of the Dominion, or if they have, they are too stubborn to offer lines suitable to a new community; and second, their selling campaigns are not adequate. As a result, American machinery has come rapidly to the front. Of all imports of agricultural machinery and implements of all kinds, the United States furnished 36 per cent in 1915 and 42 per cent in 1916. In the field of electrical machinery the United States is also gaining. In 1915 it supplied approximately one-fifth of all the electrical machinery which was imported into New Zealand, and in 1916 it supplied one-fourth.

It is not generally known, says the *Engineering and Mining Journal*, that one mine at Pioche, Nev., is shipping 350 tons of manganiferous iron ore a day, and that its gross production up to September of this year has been about 600,000 tons. The high prices paid for manganese, due to the influence of the war in curtailing imports, however, has not served to direct this supply into the ferroalloy industry. Small amounts of lead, zinc and silver in the ore, together with its desirability as a flux, give it a greater value to the lead smelters than to the steel works. In case of actual necessity, however, Pioche could supply a large tonnage of ore suitable for the manufacture of spiegeleisen.

Sheet and Tin Mill Wages Advanced

The regular bi-monthly settlement of sheet and tin mill wages for mills that sign the Amalgamated scale was made in Youngstown, Ohio, on Saturday, Jan. 12, between representatives of the Amalgamated Association of Iron, Steel and Tin Workers and of the Western Sheet and Tin Plate Association, James H. Nutt being the representative of the latter body. It was found that the average price on shipments of Nos. 26, 27 and 28 gage Bessemer black sheets in November and December was 5.50c., against 5.35c. in the previous two months, and this average price of 5.50c. entitles the sheet mill hands to an average advance of $4\frac{1}{2}$ per cent for this and next month. The average price per base box on shipments of tin plate in November and December was found to be \$8.60 against \$8.35 in the previous two months, and this entitles tin mill hands to an advance of 5 per cent in wages for this and next month, over wages paid in the last two months of 1917. The average price of \$8.60 for tin plate is 85c. higher than the price fixed Nov. 5 by the Government, which was \$7.75 per base box on tin plate rolled from Bessemer or open hearth stock. The average price of 5.50c. on gages 26, 27 and 28 black sheets is \$10 per ton higher than the Government price on 28 gage, which was fixed several months ago at 5c. at mill. In 1917, wages of sheet mill hands were advanced very rapidly, and under the terms of this last settlement they will be paid 100½ per cent above the base of the Amalgamated scale. This is also true of tin mill hands, and they are now being paid 102 per cent above the base of the Amalgamated tin mill scale.

Liberty Motor Discussed

Airplanes of the United States fighting forces, equipped with Liberty motors, undoubtedly will be better engined than any aircraft now being built, according to Government experts who spoke at the final session of the annual meeting of the Society of Automotive Engineers at New York, Jan. 10, on "Reasons Behind the Liberty Aircraft Engine." The principal speaker was Major Jesse G. Vincent, formerly vice-president of the Packard Motor Co., who, with Major Hall of the Hall-Scott Co., designed the Liberty motor.

The new Liberty engine, statements showed, will develop something more than 400 hp. at 1625 r.p.m., the highest number possible with the present propeller design. It weighs about 800 lb., and is 12-cylindere.

Major Vincent said that the English engine, the Rolls-Royce, regarded as one of the best of foreign make, with a weight of 950 lb., had never authentically developed more than 360 hp. He said that the Liberty motor can do 50 hp. better than the Rolls-Royce and has possibilities which have not been completely fathomed. The average of only 2 lb. weight per hp. compares with $2\frac{1}{2}$ lb. of the Hispano-Suiza motor, used in French machines.

Discharged Westinghouse Employees Demand Bonus

Nearly 300 former employees of the New England Westinghouse Co., Springfield, Mass., who were discharged suddenly a few days ago when the company received a cancellation of its Russian contracts, have employed an attorney to press their claims for bonus which they say they did not receive. They allege that the bonus plan was part of the contract for employment and was not a gratuity given them after they had entered the company's employ. The Watertown Arsenal and other plants are taking over a large number of the skilled men, but a great proportion of the men were special machine operators and are not competent to fill positions as machinists in other plants.

The Impervious Metal Corporation, 421 Wood Street, Pittsburgh, announces that it has purchased the Alexapope Mfg. Co., Brooklyn, N. Y., and will continue to manufacture "Alexapope" baking japan and enamels, which hereafter will be sold under the trade name "Impervious."

Shifting Labor from Slack Industries

Conference with Heads of Labor Organizations to Effect Adjustments Is Proposed
—Unemployment of Some Workingmen

Washington, Jan. 15.—The necessity for Federal co-operation to secure the prompt shifting of labor from slack industries to those which are actually short-handed is strongly emphasized in a report made public by the United States Employment Service upon labor conditions in the State of New York, which are said to be typical of the country at large. It is suggested that where labor is transferred to plants working on contracts for war material, the Government might properly pay the transportation charge upon condition that the manufacturers would assume half the cost provided the workers remained a reasonable length of time.

Five hundred factories in the State of New York filling war orders, which were visited in the course of the survey upon which this report was based, employ 261,117 persons and of these factories 176 are calling for additional labor. All are shorthanded but not all have formulated their requirements. Actual specifications, however, call for 34,155 additional employees, or about 13 per cent of the existing labor forces in these industries. Skilled male labor is requested in nearly three-fourths of the cases and woman labor in a little more than one-tenth. Unskilled male labor is wanted in only about one-seventh of the unfilled jobs. As yet, there is little demand for women to take the places of men, only about 300 being scheduled, and these are confined practically to industries engaged in the manufacture of instruments and tools. Even here the call is for "men or women." One firm, though making no calls on schedules for women to take men's places, has already substituted 400 women and by advertising cards has announced its intention of substituting many more in the future. This action has called forth vigorous protests from organized labor because of the lower wages reported to be paid to the women.

Women in the Industry

"It should be pointed out here," says the report, "that until steps have been taken to use all available skilled male labor in important war industries, there can be no intelligent control of the entrance of women into industry. As yet, there has been comparatively little substitution of women for men, but the frequency with which employers express their determination to make such substitution is a strong argument for wise and watchful activity in so distributing labor as to secure only such substitution as will result in sustained increase in productivity and will strengthen the army of both men and women workers."

The industries making the largest call for labor and the number of workers they request are listed in the report as follows:

(1) Aeroplanes and seaplanes.....	13,474
(2) Ordnance and ammunition.....	9,667
(3) Iron and steel castings and forgings.....	2,056
(4) Scientific instruments and optical supplies.....	1,755
(5) Knit goods	1,025
(6) Electrical apparatus and supplies.....	759
(7) Needle trades	708
(8) Machinery	447
(9) Tools and hardware	417

The calls for workers involving the largest number and demanding immediate attention are from the cities in the western part of the State, while the industries which are making the largest reductions in their labor forces because of the new industrial conditions are located principally in the eastern part, New York City, the boroughs of Manhattan and the Bronx being conspicuous in this respect. A list of 13 of the principal industries in the State which are laying off workers is embraced in the report, including wagons and parts, spring beds, typewriters, brass and bronze castings and

art metal work, tin cans, differentials for pleasure automobiles, and machinery used in the manufacture of paper boxes, sewing machines and for wood working.

Some Unemployment

A peculiar condition developed by the report is the fact that the survey makes it clear that there are both shortages of labor and unemployment in the same industries in the State. Of the large number of establishments in New York engaged in casting and forging iron and steel products, those engaged in manufacturing gears or differentials for pleasure automobiles, sewing machines, cream separators, calculating machines, bicycles, display fixtures, art metal goods, and kindred lines have lost a large part of their commercial business. As a result, there has been a sharp decrease in the labor force in these branches, which are centered largely in the eastern half of the State. On the other hand, there has been a heavy increase in war orders involving castings and forgings for ordnance, airplanes, motor trucks, submarine tractors, railway supplies, and castings for parts of machinery used in the manufacture of war supplies. Consequently there is a considerable number of urgent calls for labor—mostly skilled—in these branches of the iron and steel industries which are clustered largely, though not entirely, in the western and central parts of New York State. In this connection the report says:

The establishment of this fact not only explains the puzzling conflict of opinion as to whether there was or was not a shortage of labor in the State of New York, but it carries its own concrete suggestion whether by an agreement with organized labor, covering a temporary adjustment of such craft lines as are involved, the 1,600 skilled mechanics called for in the important war-order branches of the iron and steel forging and casting industries of the State cannot be supplied from the allied industries in eastern New York, which are not essential to the winning of the war and which have been hard hit by the falling off of commercial orders, and are laying off help or running short time.

In view of the fact that under the Treasury conference agreement England came to just such an understanding with the unions concerning "demarcations of work" for the period of the war, it should not be impracticable for the heads of the labor organizations concerned in this country to recommend to their locals similar arrangements—with equal guarantees against any abuse of the concessions—for the period of the war.

Proposed Conference

The report suggests that the importance of the department's placement functions in the winning of the war would seem to warrant its direct representation on the War Industries Board for the reason that effective labor distribution must be supplemented by the distribution of contracts with intelligent regard to the labor supply and equipment conditions. In conclusion the report says:

The situation suggests as a logical first step in making the facts factors in the winning of the war that a conference be held with the heads of labor organizations concerned in the craft lines running between the shorthanded and slack industries in order to effect necessary adjustments in the interests of the Nation's emergency. While the distances between the cities in which there is a labor shortage and those where there are industries laying off labor are not great, the transportation is a material item, and if it becomes necessary to shift labor from New York City or more distant points, the railroad fare becomes a problem. The circumstance suggests this concrete question: With the Government controlling the railroads, is it feasible to make arrangements whereby transportation charges for workers on war orders would be borne equally by the Government and the manufacturer if the worker stayed a certain period?

Merchant Furnaces Protest Diversion of Coke to Steel Companies

WASHINGTON, D. C., Jan. 16 (*By Wire*).—A delegation of pig-iron producers held a conference yesterday afternoon with Mr. Blauvelt of the fuel administration at which was discussed the situation brought about by the proposal of the fuel administration for the diversion of coke from merchant furnaces to the Midvale and Bethlehem steel plants. The pig-iron men also drew Mr. Blauvelt's attention to current reports that the Government is planning to close down a considerable number of merchant blast furnaces in order to conserve coke for steel plants which are working on war orders. Mr. Blauvelt stated to the delegation that the fuel administration, while having first in mind the necessities of those plants making munitions, was doing everything in its power to provide an impartial distribution of both coal and coke. The existing emergency, he thought, would be short-lived, as the fuel administration was making a most vigorous effort to increase production and was receiving hearty co-operation from the director of railroads in relieving transportation congestion. Mr. Blauvelt stated with much emphasis that there was absolutely no foundation for the report that the Government had threatened to close down some merchant blast furnaces. Nothing of the kind is in contemplation and the fuel administration appreciates fully the importance of maximum production of pig iron.

Chairman Willard Resigns from War Munitions Board

WASHINGTON, Jan. 16 (*By Wire*).—Announcement was made from the White House this morning that Daniel Willard, chairman of the War Industries Board, has resigned that post in order to give his undivided attention to the affairs of the B. & O. Railroad, of which he is president. While it is stated at the headquarters of the Council of National Defense that there is no truth in the current report that Mr. Willard has for some time been dissatisfied with conditions prevailing in the War Industries Board, the report finds some confirmation in statements made yesterday by Mr. Willard in testimony before the Senate Committee on Military Affairs to the effect that the present system of buying war material is unsatisfactory and that the purchase and distribution of such material should be centralized in some organization under the control of one man.

The Edgar T. Ward's Sons Co., Boston, has issued a pamphlet announcing its incorporation, which took effect on Jan. 1. A brief history of the growth of the company from 1882, when Edgar T. Ward engaged in business as a handler of tool steel, to the present time is traced, and short accounts of the five firms composing the new company are also presented. Numerous illustrations of the officers and plants of the company are included.

The T. P. Walls Tool & Supply Co., Inc., 75 Walker Street, New York, has been appointed New York district sales agent by the Simonds Mfg. Co., Fitchburg, Mass. The territory covered includes the states of Connecticut, New York and New Jersey, and a stock of hacksaw blades, hand and cold saws, etc., will be kept in the company's warehouse at New York.

Army aviation officials are trying to simplify construction of airplanes to hasten production. Exclusive of the engine, the average airplane contains 4326 nails, 3377 screws, 920 steel stampings, 798 forgings, 276 turn-buckles, 65 lb. of aluminum and relative quantities of varnish, rubber, linen, wood, etc.

RELIEF FOR RAILROADS

Section of Clayton Act Again Suspended by Action of Congress

WASHINGTON, Jan. 15.—A serious obstacle in the way of the procurement by the railroads of adequate equipment and supplies has been removed by the action of the Senate in passing House Joint Resolution 188 extending until Jan. 1, 1919, the effective date of Section 10 of the Clayton anti-trust act. This section, which was to have become operative on Jan. 8, 1918, was intended to prohibit railroad companies from buying supplies in quantity from corporations having directorates interlocking with those of the purchasing carriers.

Section 10 of the Clayton act was inserted by the House Judiciary Committee when that measure was under consideration in 1914 at a time when Congress was conducting an anti-trust crusade and when the subject of interlocking directorates was in the limelight. According to allegations made by various parties before the House committee there was then existing a stupendous combination between certain large producers of iron and steel and other important articles required for railroad equipment and the leading railroad systems whereby the producers secured a practical monopoly of supplying the carriers which was perpetuated by tying the manufacturers and the railroads together by interlocking directorates. The proposition to forbid such common directorship appealed strongly to Congress at the time and Section 10, effective in two years, was therefore adopted.

Under the terms of the Clayton act this provision would have taken effect Oct. 15, 1916, but prior to that date it became apparent that grave difficulties in equipping the railroads would be encountered if the prohibition contained in this section were enforced and its effective date was therefore postponed until Jan. 8, 1918.

The European war with its enormous consumption of iron and steel and other materials has brought about conditions undreamed of when the Clayton act was passed, and since the extension of Section 10 became effective it has not been possible for Congress to frame a satisfactory amendment that would meet the present industrial status. Accordingly the House, on Dec. 13 last, passed Joint Resolution 188 suspending the interlocking directorate prohibition for another year.

Steel Ingot Production in 1917

The American Iron and Steel Institute has reports from 29 companies (which made 88.14 per cent of the steel ingots produced in the country in 1916) showing the production of ingots by the various processes in the first three quarters of 1917, also by months in the last quarter, and the total for the year. The figures are as follows, in gross tons:

	Total First Six Months	Third Quarter, July-Sept.	Total First Nine Months
Open-hearth	13,681,483	6,599,048	20,280,531
Bessemer	5,164,139	2,411,108	7,575,247
Other	55,198	24,435	79,633
Total	18,900,820	9,034,591	27,935,411

	October	November	December	Total Twelve Months
Open-hearth	2,475,754	2,384,218	2,195,832	27,336,335
Bessemer	870,494	772,489	524,084	9,742,314
Other	5,687	9,550	13,806	108,676
Total	3,351,935	3,166,257	2,733,722	37,187,325

Based on the above the American Iron and Steel Institute estimates the total steel ingot production of the country in 1917 at 42,200,000 tons, the sharp falling off in December compelling this revision of previous estimates.

The Toledo Screw Products Co., Toledo, Ohio, has taken a contract for 1,500,000 37-mm. shells for the United States Government and 500,000 shells of the same size for France. This company has just completed a contract for 1,000,000 shells for the Navy Department.

Freight Car Building Fell Off in 1917

During 1917 there were 151,400 freight cars constructed in the United States, of which 119,363 were for domestic use and more than 30,000 for railroads in other countries, according to statistics compiled by *Railway Age*. There was also a production of 2000 passenger cars, of which 1969 were for domestic use and 5446 locomotives, of which 2585 were for domestic use. In 1916, 135,001 freight cars were constructed, 1839 passenger cars and 4075 locomotives.

The number of freight cars ordered during the year, for use in United States and Canada, was 79,367, or less than for any year since 1908. The United States Government also ordered 180 freight cars for domestic use. There were also ordered 18,844 freight cars for use on the Government's military railroads in France, 21,700 for the French Government, 42,500 for the Russian Government, including 30,500 on which orders have been held up, and 1467 for other foreign governments, a total of 164,058. A total of 2704 locomotives were ordered for railroads in the United States and Canada, 2057 for the military roads in France, 275 for England, 140 for France, 2196 for Russia and 200 for other foreign governments, a total of 7640. This includes Russian orders for 1500 locomotives which are now held up. A total of 1167 passenger cars were ordered of which six were for our use in France and 37 for foreign countries.

Orders for cars and locomotives for domestic use for the past five years have been as follows:

	Freight Cars	Passenger Cars	Loco- motives
1917.....	79,367	1,124	2,585
1916.....	165,324	2,540	2,891
1915.....	109,792	3,101	1,612
1914.....	80,264	2,002	1,265
1913.....	146,732	3,179	3,167

Storm's Havoc in Calumet Region

The heavy snowfall of early last week not only clogged railroad lines, preventing deliveries of coal, coke and other supplies to the plants in East Chicago and vicinity, but also kept employees away from their posts, and damaged roofs at the plants of the Republic Iron & Steel Co., the Interstate Iron & Steel Co. and the William Graver Tank Works. The Western Steel Car & Foundry Co. and the Ryan Car Co. were hard hit, as they depend on the South Shore Interurban Line, which came to a full stop. Communication between the manufacturing centers of the Calumet region were seriously interrupted for days. The American Sheet & Tinplate Co., which is making French helmets, operated at only one-third capacity, as did the American Bridge Co. The Union Drawn Steel Co., Gary, making aeroplane pipes, was crippled. As already reported, the blast furnace situation was extremely bad.

Many Manufacturers Meet

Representatives of many important manufacturing concerns held a meeting in the William Penn Hotel, Pittsburgh, last week and discussed ways and means to aid the Government in case their services are needed to help win the war. Representatives were present from factories in Massachusetts, New York, New Jersey, Connecticut, Pennsylvania, Indiana, Michigan, Iowa and West Virginia, embracing makers in these states of electrical supplies, rubber goods, plows, iron and steel foundries, machine tools, brass, paper, and many other articles, all of which will be needed more or less in the prosecution of the war. Those present included N. J. Bachelder, Governor of New Hampshire; George S. Ladd, J. Frank Zoller, John M. Glenn, secretary, all from Chicago, and William Butterworth, president of the Illinois Manufacturers' Association.

The Akimoff patents for a dynamic balancing machine are controlled by the Carwen Steel Tool Co., Philadelphia. The balancing machine itself was discussed at length by the designer, N. W. Akimoff, before the recent meeting of the American Society of Mechanical Engineers.

Methods of Firing Discussed

Efficient firing was discussed at a meeting held at the City Club, Baltimore, on Jan. 10, under the auspices of the Society of Mechanical Engineers and the Engineers' Club of Baltimore. The principal speaker was Charles H. Bromley, associate editor of *Power*, New York, who spoke upon the necessity of educating plant owners and firemen as to the best methods of conserving the fuel supply. He pointed out that many large plants had successfully brought about the desired economy in fuel consumption by giving bonuses to the firemen for the amount of coal saved. He urged that Baltimore plants adopt this method. Among other things, Mr. Bromley advocated the firing of half of the fuel bed at a time and said it is just as important to regulate the water supply of the boiler as the fuel supply.

George Goodwin spoke on "Waste of Fuel by Occupants and Employees of Plants." Other speakers were Captain L. B. Webster, of the U. S. Army, formerly an efficiency engineer in the West; Charles L. Mintien, who spoke on "Saving Heat in the Engine Room"; John Milne, assistant United States Steamboat Inspector; John Powell, whose subject was "Devices to Secure Greater Boiler Efficiency"; Robert Mugford, on "Methods of Firing Used in Water Tube Boilers," and Philip A. Kirkwood, whose subject was "Methods of Firing Used in Return Tube Boilers."

Prof. A. G. Christie, of Johns Hopkins University, one of the leaders in the fuel-saving campaign, also spoke. The meeting was presided over by Harry D. Bush, superintendent of the Carnegie Steel Co., Baltimore, who is president of the Engineers' Club of Baltimore.

Decline in Imports of Ferromanganese and Manganese Ore

Ferromanganese imports in November were only 1512 gross tons, smaller than in any previous month in 1917. The total to Dec. 1, 1917, was 40,910 tons, or an average of 3720 tons per month. The extent of the contraction is indicated by the fact that for the first six months of 1917 the imports averaged 5099 tons per month, but in the five months from July to November inclusive the average was only 1958 tons per month.

Manganese ore imports were small in October and November, 1917, being 16,408 and 44,141 gross tons respectively, bringing the total to Dec. 1, 1917, to 555,282 tons. This compares with 526,525 tons to Dec. 1, 1916, until then a record. This decline in the latter part of 1917 may reflect the withdrawal of vessels from the Brazilian ore trade.

Pittsfield Employees of General Electric Meet

A renewal of their demand of some weeks ago for a 10 per cent increase in wages is threatened by the employees of the General Electric Co. at its Pittsfield, Mass., plant. A compromise agreement of a 2½ per cent general bonus and a punctuality bonus has not been working satisfactorily. On account of weather conditions and poor trolley service, there has been a general loss of the punctuality bonus, leaving the 2½ per cent bonus as the only increase. Labor leaders from the machinists', metal polishers', pattern makers', blacksmiths' and electrical workers' unions were present at a recent mass meeting of the employees and urged them to restrain from pressing the demand, but it is doubtful if their advice is followed. James Smith of the Department of Labor is on the ground and is endeavoring to bring about a settlement of the threatened trouble.

The Engineers' Club, Dayton, Ohio, will dedicate its new building on Saturday afternoon and evening, Feb. 2. It is located on Monument Avenue and Jefferson Street near the center of the city. It is three stories high, 125 x 150 ft. in main dimensions. Besides the usual club equipment, such as library, lounging room, billiard and game room and dining facilities, it has an auditorium accommodating 450 persons.

WILL RUSH SHIPBUILDING

Plans for Greatly Increasing Output of American Yards

WASHINGTON, Jan. 15.—Between 4,500,000 and 5,000,000 tons of shipping will be built in the United States during the calendar year 1918, according to a statement by Chairman Hurley of the shipping board, based on a special report by Lloyds made at Mr. Hurley's request. The object of the chairman in securing this report was to correct the statements made in testimony before the Senate Committee on Commerce, now engaged upon an investigation of the shipping board, that the Lloyds agency estimated the 1918 output of the American shipbuilding industry at only 2,500,000 tons.

"There are now in existence in the United States," says Mr. Hurley, "118 shipyards, 51 for steel vessels and 67 for wooden ships. The force of shipyard workers has increased from about 105,000 on Oct. 15, last, to 170,000 on Dec. 22, when our last report was received. In April, 1917, there were 148 shipways in the country while at the present time there are built or building 716 ways, of which 95 per cent are completed. Keels have been laid on all completed ways. Plans for enrolling 380,000 men in the shipbuilding industry are well under way and I believe that two wooden ships will be completed this year on each shipway designed for such construction, and that in the steel shipyards three and possibly four ships per shipway will be turned out."

Expansion of Operating Department

A bulletin of the shipping board states that upon the recommendation of Edward F. Carry, director of operations, there is to be an expansion of the operating department to meet the growing needs of the shipping situation. The expansion is one of the direct results of the interallied conference in Paris, at which conference the shipping board was represented by Commissioner Bainbridge Colby. So that every ship will be loaded promptly and moved without delay or confusion, the director of operations will have in New York a controller of shipping, who will be on the ground to co-operate with the war port board and the War Department, giving quick decisions and seeing to it that no ship remains idle unless in case of necessity. The controller, working under Mr. Carry, will have complete charge of the New York shipping office and the transatlantic service, and will also be in charge of the pooling plans to facilitate and expedite our shipping in connection with that of England and France, Italy, and Russia. Questions of organization and policy, as worked out by Director Carry, will be applied by the controller on the scene of action.

Reorganization and extension of the operating department of the shipping board so as to place representatives in London, Paris and Rome as well as at branches at nearly all important Atlantic coast ports is also announced as one of the direct results of the interallied war conference. The plan is not only to make more effective control of the American merchant fleet, but to insure complete co-operation with the shipping of the Allies.

America's merchant ship production in 1917 is put at 901,223 gross tons in reports made to the shipping board, a synopsis of which has been made public. This was nearly double that of 1916 and almost half of the world's output of 1,899,943 tons that year.

Figures showing construction in other countries in 1917 have not been received in this country, but shipping board officials believe America led the world in tonnage output. England and Japan, they say, probably were the only countries that increased their production over that of 1916.

Sinkings by Submarines

Sinkings by submarines in 1917 are generally reckoned at 5,000,000 tons, probably about twice as much tonnage as was built. England now is building ships at a fast rate, and Japan also has increased greatly its

construction, but just now operations are hampered by lack of steel. Other countries are building few ships.

The shipping board has decided to remove from the Great Lakes an additional 30 ships for ocean service. The vessels will be cut in half this winter and will be removed through the Welland Canal and reassembled when navigation is resumed in the spring. Already 42 ships have been brought out.

Recent reports from shipyards indicate that the builders are speeding up faster and producing tonnage in a greater measure than ever before thought possible. Eighteen vessels requisitioned on the stocks, of 145,091 dead weight tonnage, will be completed this month, and during February 23 ships of 182,000 tons will be turned out. Twenty-five of the 41 vessels are building on the Pacific coast.

Labor from Italy After the War

America cannot count on receiving the usual large yearly supply of patient and intelligent labor that Italy has given us, according to Charles F. Hauss, in the *Evening Post*, of New York, Dec. 31, 1917. There is a general belief that after the war emigration will be prohibited, or at least restricted, to develop more rapidly the industries and the natural resources of Italy. For instance, there are still many millions of horsepower hydroelectric plants to develop, which offer great opportunities for American initiative.

Mr. Hauss, now in this country with the export house of Mario Tapparelli fu Pietro, Inc., 50 Church Street, New York, is president of the American Chamber of Commerce for Italy, at Milan, and for some years, following a long period of identification with the heating, radiator and boiler industry in this country, was associated with branches of the American Radiator Co., chiefly in France and Italy. His article above mentioned related to America's chance in Italian commerce. His views are in part as follows:

There are about 4,500,000 men and women working in factories to-day who never worked in factories before the war, and their natural intelligence has enabled them to become expert workers, and they will become an important factor in the after-war business, for the war has awakened Italy so that she realizes what her own capabilities are.

Italy will continue to purchase raw material from us, only she will wish to purchase more raw material. In various lines of industry we will have to look upon Italy as a serious competitor, for in certain branches she certainly does excel in quality, if not in quantity, and among these are automobiles, aeroplanes, hydraulic as well as steam turbines, and heavy-oil engines. Even before the war she was able to compete successfully in these lines with the entire world, where economy and efficiency are required.

Lower Prices for British Steel Scrap

A new order reduces the maximum prices of British steel scrap, fixed by the Ministry of Munitions. On all classes, mixed or not with wrought iron or other material, except steel planings, turnings and borings, the price is changed from £5 5s. to £4 15s. per ton. Wrought iron scrap, mixed with steel or other material, is reduced from £5 5s. to £4 15s. per ton.

Foundrymen in Cleveland, operating heavy shops, have reached an agreement with their molders, raising their wages from \$4.50 to \$5.50 per day for nine hours. One factor in granting this increase was the fact that Detroit foundrymen advanced wages of molders a few days ago to \$5.50 per day. The wages of molders in the light shops in Cleveland have not yet been adjusted.

The Standard Steel Castings Co., Cleveland, has purchased the experimental plant of the Industrial Electric Furnace Co. at Clearing, Chicago, also two additional electric furnaces made by the same company. All are expected to be in operation about July 1.

Machinery Markets and News of the Works

BIG GOVERNMENT LIST

Ordnance Department Has Large Requirements

Machine Tool Section of War Industries Board Sends Out an Urgent Appeal

Probably the largest single inquiry for machine tools that has ever been issued comes from the Ordnance Department of the United States Army. The machines are needed within the next two months.

This list includes some 500 planers, of which 320 are 36 x 36 x 14 ft.; more than 100 are 48 x 48 x 20 ft., and a number 60 x 60 x 20 ft. are also required. Several Nos. 4 and 5 horizontal milling machines, a large number of No. 4 vertical milling machines; several hundred engine lathes, 30 in. x 20 ft., as well as 36, 42 and 48-in. machines of the same type, and more than 100 4 and 6-in. floor type horizontal boring, milling and drilling machines are also very urgently needed.

Not only machine-tool dealers and builders, but users of machine tools, as well, are asked by the Government to co-operate in obtaining these very necessary tools. It is impossible for the regular sources to supply this equipment within the time it is needed and manufacturers who have such tools, which are not fully engaged in essential war work, are invited to communicate at once with the Machine Tool Section of the War Industries Board as a patriotic act. The Government will borrow, rent or buy such machines.

Unless this equipment is obtained promptly from some source the war program of the United States, especially that relating to the production of heavy guns, will be seriously impeded.

Machine-tool demand in the East for several weeks has been dropping off gradually. This is due to the fact that a larger proportion of war contracts is being placed in the Central West. Railroad congestion in the East is probably responsible for the decision of the Government to avoid further concentration of war business in the East, except as may be necessary.

In the New York market the latest developments are inquiries by the Hyatt Roller Bearing Co., Newark, N. J., which will make 1-lb. shells, and by the Regina Co., Rahway, N. J., which will engage in the manufacture of roller bearings. The Watson-Stillman Co., New York, and the S K F Roller Bearing Co., Hartford, Conn., have placed good-sized orders within the past week.

New Jersey manufacturers are buying new tools to speed up production wherever possible, trying to offset in this way the lack of capacity production due to insufficient electric power from the Public Service of Newark. Gas engines with generators will be purchased by some plants for furnishing their own power.

The Navy Department has distributed orders for 60 locomotive cranes. The American International Shipbuilding Corporation is in the market for 20.

The Atwater Kent Mfg. Co., Philadelphia, will make fuse setters for the Government and will buy about 50 new machines. The Remington plant, Eddystone, Pa., is increasing its capacity from 2500 Enfield rifles per day to 6000 per day, new equipment being provided. The Frankford Arsenal continues to buy.

Buying has improved in the Chicago market, but it does not show the pre-holiday vigor. The United Mfg. & Distributing Co., Chicago, is reported to have a fuse contract and the Winslow Ornamental Iron Works, Chicago, has a contract for 200,000 shells, 155 mm., corresponding to the United States 6-in. shells. The latter company has placed orders for machinery with the Amalgamated Machinery Corporation, Chicago.

New York

NEW YORK, Jan. 15.

While there continues to be a lack of large buying in the New York market, a fair business is being done in some lines. It is reported unofficially that the Government will install machine shops in all of the National Army cantonments to develop corps of machinists for the repair of equipment in France. Purchases will also be made for the armies in the Philippines and Hawaii.

The Hyatt Roller Bearing Co., Newark, N. J., is about to close a contract with the Government for making 1-lb. shells and is inquiring for a considerable quantity of new equipment. The Regina Co., Rahway, N. J., will engage in the manufacture of roller bearings and will come into the market for equipping a new plant. The Watson-Stillman Co., New York, has placed additional orders during the past week for tools for making hydraulic jacks for 9.5-in. guns. The Watson-Stillman Co.'s contract is the largest ever placed for hydraulic jacks. The S K F Roller Bearing Co., Hartford, Conn., continues to buy, having placed an order for a dozen grinding machines.

New Jersey manufacturers have been greatly handicapped by the inability of a public service corporation, which supplies eastern New Jersey with electric power, to furnish a sufficient amount for more than three days' operation a week. To speed up production, inquiries have been made by a number of companies for new and improved tools to take the place of old equipment. By some manufacturers there is also a movement on foot to install gas engines with generators to furnish their own electric power.

The Navy Department has distributed orders for about 60 locomotive cranes among all of the makers upon an equal basis. The American International Shipbuilding Corporation, Hog Island, Philadelphia, is in the market for 20 locomotive cranes. The Industrial Works, Bay City, Mich., furnished this company with 27 a few months ago.

The College Point Boat Corporation, College Point, Long Island, has had plans prepared for a two-story addition, 50 x 120 ft., at First Avenue and Third Street, to cost \$10,000.

The Danubil Co., New York, has been incorporated with a capital of \$50,000 to manufacture engine-room specialties and rubber products. A. S. Pratt, V. Niehthaus and J. M. Boyle, 61 Broadway, are the incorporators.

The Gregory-Gibbs Ordnance Co., Brooklyn, has been incorporated with a capital of \$30,000 by G. W. Gibbs, W. G. Ivie and T. M. Gregory, 263 North Henry Street, Brooklyn.

The Diamond Drill Carbon Co., 63 Park Row, New York, has increased its capital from \$10,000 to \$500,000.

The Akron Tire Co., Inc., Skillman Avenue, Long Island City, has had plans prepared for a one-story brick addition, 50 x 95 ft., to cost \$12,000.

The Dayton-Ohio Production Co., New York, has been incorporated with an active capital of \$25,000 to manufacture firearms, guns, etc. D. W. Morgan, A. H. Glock and E. K. Hanlon, 610 West 141st Street, are the incorporators.

The Chautauqua Wire Corporation, Dunkirk, N. Y., organized with a capital of \$250,000, has acquired the buildings of the Dunkirk Development Co., on Lucas Avenue, heretofore occupied by the Dunston Corporation. The structures will be remodeled into a plant for the manufacture of wire specialties and drill rods for precision drills. It is planned to improve and extend the works by the construction of a rolling mill, melting furnaces, hammer department and other structures at an estimated cost of \$250,000. It is proposed to start operations in May. The Chautauqua Corporation is a subsidiary of the Atlas Crucible Steel Co., with works on Howard Avenue specializing in the production of crucible tool steel. The products of the new organization will be used by the Atlas Co. at its local plant.

The Pittsburgh Plate Glass Co., 322 Hudson Street, New York, and Pittsburgh, Pa., has closed negotiations for the erection of a plant at Hunters' Point Avenue and Davis Street, Long Island City, 260 x 280 ft. one story, and 200 x 200 ft., two stories, estimated to cost \$400,000.

The Delorie Hoist Co., New York, has been incorporated with a capital of \$100,000 to manufacture hoisting machinery. A. J. Delorie and G. L. Smith, 26 Cortlandt Street, and W. M. Bastable, 149 Broadway, are the incorporators.

The Port Morris Industrial Terminal Co., 140th Street and Locust Avenue, New York, contemplates the erection of an eight-story factory, 100 x 260 ft., at 140th Street and East River. G. D. Jackson is president.

The Royal Toy Mfg. Co., New York, has been incorporated with a capital of \$20,000 to manufacture toys. S. B. Pollak, M. Donath and F. Weiss, 205 Audubon Avenue, are the incorporators.

The Reversing Steering Equipment Corporation, New York, has been incorporated with a capital of \$10,000 by W. Cook, Jr., and J. G. Deane, 45 Broadway.

The Ordnance Engineering Co., 120 Broadway, New York, has increased its capital from \$100,000 to \$250,000.

P. S. Thorsen & Co., 81 Coffey Street, Brooklyn, manufacturers of asbestos coverings, etc., have increased their capital from \$20,000 to \$150,000.

The Sidel-Rattner Mfg. Co., Brooklyn, has been incorporated with a capital of \$12,000 to manufacture metalware and automobile specialties. R. Sidel, C. D. Brandt and C. Rattner, 18 Dunham Place, are the incorporators.

The Russian Steel Export Co., New York, has been incorporated with a capital of \$200,000 to manufacture iron, steel and metal products. H. W. McAteer, C. B. McElhany and J. B. Beal, 233 Broadway, are the incorporators.

The Wallace & Tiernan Co., Inc., 137 Centre Street, New York, manufacturer of sanitary engineering supplies, has increased its capital from \$25,000 to \$500,000. Martin F. Tiernan is president.

The Ajax Rubber Co., Trenton, N. J., has acquired through Horace Delisser, chairman of the board of directors, a tract of land at Newtown Creek and East River, Greenpoint district, Brooklyn, formerly used by the American Sugar Refining Co. The property, which has been held at \$2,000,000, consists of about 169 lots, with a frontage of 900 ft. on Newtown Creek and East River. The company is reported to be planning to use the site for the construction of a plant for the manufacture of its products.

The Basinger Co., New York, has been incorporated with a capital of \$25,000 to manufacture carbon and black diamond specialties. C. Basinger, E. N. and C. A. Wolf, 65 Nassau Street, are the incorporators.

The Multiscope Corporation, New York, has been incorporated with a nominal capital of \$7,000 to manufacture motion picture machines and parts. M. H. Bun, A. Forshay and R. Goldman, 1150 Madison Avenue, are the incorporators.

J. C. Aitkin, 216 South Centre Street, Schenectady, N. Y., will build a one-story extension to his storage battery works, 50 x 80 ft.

The General Electric Co., Schenectady, N. Y., has filed notice of increase in its capital from \$105,000,000 to \$125,000,000.

The Ordnance Department, United States Government, has leased a four-story factory, 75 x 300 ft., on Lewis Street, Paterson, N. J., as a works for the manufacture of munitions.

The Wharton Steel Co., Wharton, N. J., will build a new sawmill for its properties at Lower Hibernia.

Henry Steers, Inc., West First Street, Bayonne, N. J., has been granted permission by the City Commissioners to extend its works on First Street from Trask Avenue to the Boulevard to provide for the construction of about 60 barges for Government use. The extension to the plant will be on the Kill von Kull water front. With the addition, the ship works will give employment to more than 1000 hands.

The Snead & Co. Iron Works, foot of Pine Street, Jersey

City, will build a two-story, brick addition to its plant to cost about \$15,000. The company has recently increased its capital from \$280,000 to \$1,255,000 for expansion.

Fire Jan. 9 destroyed the chair-making plant of the Joseph Partridge & Sons Co., 293 Johnston Avenue, Jersey City, with loss estimated at \$150,000.

The American Brake Shoe & Foundry Co., Mahwah, N. J., manufacturer of railway brake shoes, castings, etc., has awarded contract for a one-story addition to its works.

The Sea-Gold Improvement Co., Brooklyn, has been incorporated with a nominal capital of \$5,000 to manufacture airplanes. H. O. Dobson, M. O. and R. Hall, 7822 Twelfth Avenue, Brooklyn, are the incorporators.

Fire Jan. 1 destroyed the carriage and wagon plant of Harry A. DeHart, Thorofare, N. J., with loss of about \$20,000.

The A. P. Smith Mfg. Co., Norman Street, East Orange, N. J., manufacturer of waterworks machinery, etc., has increased its capital from \$600,000 to \$1,000,000.

The Walton Auto Body Co., 110 West End Avenue, New York, has acquired a four-story factory, 100 x 100 ft., at Eleventh Street and Avenue D, to be used for a plant for the manufacture of airplane frames.

The Manville Mfg. Corporation, New York, has been incorporated with a capital of \$300,000 by R. Sherman, S. Bennett, Jr., and R. W. Evans, 14 Wall Street, to manufacture fire extinguishers.

The Tandem Aeroplane Co. of America, New York, has been incorporated with a capital of \$100,000 to manufacture aeroplanes. F. Lawrence, C. Baas and F. Wallberg, 500 West 140th Street, are the incorporators.

The Pennsylvania Crusher Co., 50 Church Street, New York, has increased its capital from \$25,000 to \$100,000.

Kyle & Purdy, 282 King Avenue, City Island, New York, operating a shipbuilding works, have had plans prepared for a three-story addition, 60 x 180 ft., and a one-story boiler plant.

The Krisfo Tool & Chemical Corporation, New York, has been incorporated with a capital of \$75,000 to operate a boiler works, tool and machine business. C. Kriser, D. D. Walter and E. Sayer, 208 West 119th Street, are the incorporators.

The Pyramid Grate Bar Co., 30 East Forty-second Street, New York, has increased its capital from \$5,000 to \$50,000.

L. Motcham, 31 Broadway, Brooklyn, manufacturer of brass goods, has incorporated as L. Motcham, Inc., with a capital of \$10,000.

The Willard F. Meyers Machine Co., Hamilton Avenue, Long Island City, N. Y., has completed plans for a one-story addition, 35 x 75 ft., to cost \$7,000.

The Crown Aluminum Solder Co., New York, has been incorporated with a nominal capital of \$5,000 by L. Pasku, H. Michaelis and J. B. Schlesinger, 338 West 112th Street.

The Dubilier Co., Inc., 217 Centre Street, New York, has increased its capital from \$75,000 to \$125,000.

L. J. Lewery & Co., New York, have filed articles of incorporation in Delaware with a capital of \$200,000 to manufacture iron and steel products. S. B. Howard, George V. Reilly and A. W. Britton, 65 Cedar Street, New York, are the incorporators.

The Empire State Steel Products Co., 165 Broadway, New York, has increased its capital from \$25,000 to \$100,000. Benjamin A. Hegeman, Jr., is president.

Buffalo

BUFFALO, Jan. 14.

The Atlantic Stamping Co., 180 Ames Street, Rochester, manufacturer of sheet-metal specialties, has awarded contracts for a brick extension, 86 x 110 ft., two stories, to cost \$21,000, and a factory 65 x 100 ft., one-story, to cost \$5,000.

The Pennsylvania Railroad Co., Buffalo, has filed plans for a new forge and wheel shop at 1068 Seneca Street, in connection with its present works.

The Buffalo Forge Co., 490 Broadway, Buffalo, manufacturer of forges, fans, blowers, etc., has filed plans for a two-story addition to its plant at 493 Spring Street.

The Sizer Forge Co., 238 Larkin Street, Buffalo, is negotiating with the Wabash Railroad for property on Railroad Street for plant extensions. It has also applied for easements on city property adjoining its works. Its proposed machine shop on Larkin Street it is estimated will cost about \$55,000, and will be used for increased capacity.

Fire Jan. 2 damaged the plant of the Curtis Machine Corporation, 1300 East Second Street, Jamestown, N. Y., caus-

ing a loss estimated at \$50,000, including building and machinery.

The Elderfield-Hartshorn Hardware Co., 40 Falls Street, Niagara Falls, N. Y., manufacturer of hardware and sheet-metal goods, has awarded contract for a one and two-story addition on First Street, 50 x 100 ft., to cost \$25,000.

The Routh Metals Co., Newark, N. J., is operating its plant at 161 Mulberry Street at full capacity for the manufacture of electrical equipment for the Government, and of its regular specialties, metal supplies for the plumbing and tinning trades, galvanized products, etc. O. R. Routh is president.

The Hayden Utilities Corporation, Newark, N. J., has been incorporated with a capital of \$40,000 to manufacture machinery. H. A. Hayden, Westfield, N. J.; E. J. Hunt, West Orange; and G. G. Cook, Maplewood, are the incorporators.

The James H. Rhodes Co., Chicago, Ill., is making substantial progress in the construction of its new plant on property recently acquired on the Kearny meadows, near Newark, N. J. The work will be devoted to the manufacture of wire sponges, etc.

The Terminal Electric & Auto Supply Co., Newark, N. J. has filed notice of organization to operate at 605 Orange Street. William Kirk, 82 Park Avenue, East Orange, is president.

The Public Service Electric Co., Jersey City, N. J., has filed plans for a one-story brick addition to its works at the foot of Duffield Avenue, to cost about \$4,000.

New England

Boston, Jan. 14.

As a result of strenuous measures on the part of the Fuel Administration there is considerable improvement in the coal situation in New England, but not enough coal is coming in yet to meet daily requirements and many plants have only two or three days' supply on hand. A succession of heavy storms continue to delay shipments that are on the way. Several large industries, one or two of them munition works, have been shut down for days, and plants such as the United States Cartridge Co., Lowell, Mass., and the Springfield Arsenal, Springfield, Mass., can only be kept from a complete shutdown by the diversion of coal destined for other points.

An unusual situation has developed in Springfield and Bridgeport on account of the laying-off of thousands of hands by the New England Westinghouse Co. and the Remington Arms Union Metallic Cartridge Co. The problem of the past months has been to get help enough; now it has been suddenly reversed and the difficulty is to know what to do with the men suddenly turned loose. Hundreds are being taken on by plants engaged on Government munitions work, but it has been found difficult to find places for them fast enough, as there was no warning of the cessation of work on Russian contracts.

Machine tool builders report the usual slackening off of orders that follows the inventory period. There is some direct Government business being placed, but not in the large volume of the closing months of last year.

The Scovill Mfg. Co., Waterbury, Conn., has awarded a contract for a five-story factory, 70 x 217 ft., with an ell, 20 x 73 ft. It will also build a reclaiming plant, 42 x 92 ft., three stories, and a storage building, 64 x 107 ft., one story. The company contemplates the erection of a new office building, and is reported to have plans prepared for dormitory buildings for women employees.

The R. H. Long Co., Framingham, Mass., has been incorporated with authorized capital stock of \$10,000,000 to manufacture machinery. Richard H. Long is president and treasurer.

The Westfield Mfg. Co., Westfield, Mass., has awarded a contract for a one-story steel storage building, 32 x 74 ft. It will also add another story to two other buildings, 61 x 200 ft. and 61 x 100 ft.

The Northway Motors Corporation, Boston, has been incorporated with authorized capital stock of \$5,000,000 to manufacture automobiles and supplies. James F. Cavanaugh is president and James F. Finneran, 100 Tremont Street, treasurer.

The Bristol Brass Co., Bristol, Conn., is building a reclaiming plant on Broad Street.

The Taft-Peirce Mfg. Co., Woonsocket, R. I., is building an addition, 32 x 58 ft., two stories.

The Chase Metal Works, Thomaston Avenue, Waterbury, Conn., is to build a one-story addition, 40 x 100 ft.

The roundhouse and carshop of the Boston & Maine Railroad at Cambridge, Mass., has been destroyed by fire,

together with a number of cars. The loss is estimated at \$125,000.

The Housatonic Shipbuilding Co., Stratford, Conn., has begun work on an addition, 30 x 60 ft.

The Fitzgerald Mfg. Co., Torrington, Conn., has increased its capital stock from \$100,000 to \$250,000 and has amended its articles of incorporation to permit the manufacture of fancy and general hardware, automobiles, etc. The name of the T. C. Richards Hardware Co., Winchester, Conn., has been changed to the Fitzgerald Mfg. Co.

The E. S. Stacy Machine Co., Springfield, Mass., has been incorporated with capital stock of \$60,000. Harry W. Stacy is president and Frank E. Stacy, 176 Maple Street, Springfield, is treasurer.

The General Shoe Machinery Co., Portland, Me., has been incorporated with authorized capital stock of \$200,000 by George T. Spear, Elmer Perry and others to operate a foundry and machine shop.

The Gorham Mfg. Co., Providence, R. I., has awarded a contract for an addition, 62 x 149 ft., one story.

The Marlin-Rockwell Corporation, New Haven, Conn., has awarded a contract for an addition to its Dixwell Avenue plant, 180 x 400 ft., one story.

The Gillette Safety Razor Co., Boston, is having plans drawn for an addition, 300 x 375 ft., seven stories.

The S. K. F. Ball Bearing Co., Hartford, Conn., has awarded a contract for an addition, 125 x 200 ft., one and two stories.

The Wayland Tanning Machinery Co., Wayland, Mass., has had plans drawn for a one-story factory, 40 x 150 ft., to be erected at Boston and Proctor streets, Salem, Mass.

The Lapointe Machine Tool Co., Hudson, Mass., is building a three-story addition, 60 x 100 ft.

The Remington Arms Union Metallic Cartridge Co. has awarded a contract for the construction of two storage buildings, 110 x 600 ft., one story, at its cartridge plant in Bridgeport, Conn.

The General Machine & Mfg. Co., Bridgeport, Conn., has been incorporated with authorized capital stock of \$50,000 by Axel H. Nilson, David Hjorth and others.

The Lennox-Kinghorn Drop Forging Co., Rocky Hill, Conn., has filed a final certificate of dissolution.

S. G. Monce, Inc., Unionville, Conn., is a new corporation with authorized capital stock of \$10,000 which will manufacture glass cutters, lock stencils, etc. The incorporators are S. G. Monce, Torrington; Orrin J. and George L. Moses, both of Unionville.

Landers, Frary & Clark, New Britain, Conn., have awarded a contract for a three-story addition, 155 x 634 ft.

The McCathron Boiler Works Co., Bridgeport, Conn., has increased its capital stock from \$5,000 to \$50,000.

The William H. Haskell Mfg. Co., Pawtucket, R. I., bolt manufacturer, is having plans drawn for an addition to its plant.

The Trimont Mfg. Co., 61 Amory Street, Boston, is erecting an office building, 45 x 85 ft., two stories.

The General Electric Co. is erecting two factory buildings, 67 x 340 ft., two stories, and 23 x 58 ft., one story, and a two-story office building, 60 x 140 ft., at its Rover works, West Lynn, Mass.

The International Casket Hardware Co., Meriden, Conn., has been incorporated with authorized capital stock of \$100,000 and will commence business with \$50,000. The incorporators are Arthur Manning and Robert V. Treat, South Manchester, and E. Stanley Klein, Meriden.

The manufacturing properties and equipment of the American Watch Tool Co., and the Crescent Park and River Street plants of the Metz Co., all at Waltham, Mass., are to be sold at auction Jan. 29 to Feb. 1 inclusive by J. E. Conant & Co., auctioneers, Lowell, Mass. The operations of all these plants, either owned or controlled by the Metz Co., are to be hereafter consolidated at its new Gore Street plant, which covers five and one-half acres, one-story high.

Philadelphia

PHILADELPHIA, Jan. 15.

Demand for small lots of machine tools continues fairly active in this market, but there is an almost complete absence of large lists. Factory representatives are giving considerable time to expediting deliveries. The situation is badly complicated by the embargo of the Pennsylvania Railroad.

The Remington plant at Eddystone has been making additional purchases of machine tools for work on the modified Enfield rifle. Its output at present is about 2500 per day and this will gradually be increased to 6000 per day.

The Frankford Arsenal has made additional purchases. A list was sent out from the Arsenal last week for grinding machines for overseas services, but it was announced later that this buying would be done from Washington.

The Atwater Kent Mfg. Co., manufacturer of ignition systems, will devote its large plant in Philadelphia to the manufacture of fuse setters, a device which makes it possible to set time fuses without marking the graduations on the fuse. The company will buy about 50 new machines.

The New York Shipbuilding Co., Camden, N. J., has awarded contracts to the Austin Co., Cleveland, for the construction of additions at its shipbuilding plant, consisting of a one-story, brick and steel building, 35 x 300 ft., and a second one-story structure of brick and steel. A contract has also been let to Doyle & Co., Philadelphia, for the erection of a one-story, brick extension to its works, 41 x 68 ft. The company has filed plans for the construction of a new one-story tool shop, 60 x 256 ft., and a one-story addition, 34 x 41 ft., at Broadway and Fairview streets.

The rubber industry at Trenton, N. J., shows evidence of rapid expansion. Many of the larger plants, devoted to the manufacture of automobile tires and other rubber goods, have commenced the construction of additions for increased capacities. The Zee Zee Rubber Mfg. Co., Yardville, near Trenton, has inaugurated construction work on a new plant, consisting of brick and concrete buildings, to cost about \$500,000. The works will be equipped for the manufacture of automobile tires. The Home Rubber Co., Woolverton Avenue, Trenton, manufacturer of belting, packing, etc., has increased its capital from \$500,000 to \$1,000,000 for expansion. The Essex Rubber Co., Beakes and May streets, Trenton, manufacturer of mechanical rubber goods, will build a two-story addition to cost \$30,000. The Luzerne Rubber Co., Muirheid Avenue, Trenton, manufacturer of hard rubber goods, will build a one-story addition to cost \$20,000. The Spotswood Rubber Mfg. Co., Spotswood, is planning for the removal of its plant to Trenton.

The Standard Concrete Machinery Co., Bulletin Building, Philadelphia, is having plans prepared for a plant to consist of three one-story structures to cost about \$25,000.

The Quaker City Motortruck Mfg. Co., Philadelphia, has been incorporated in Delaware with capital of \$1,000,000 by Charles L. Guerin, Joseph D. and John Morelli.

The Union Tank Line Co., Point Breeze, Philadelphia, will build a one-story car repair shop, 88 x 150 ft., at Thirty-sixth and Jackson streets, to cost about \$30,000.

The Chester Iron Co., Philadelphia, has been incorporated with a capital of \$50,000 to manufacture iron and steel specialties. Allen R. Hoffer, of Allen R. Hoffer & Co., dealers in iron and steel, Pennsylvania Building, Philadelphia, is the principal incorporator.

The Franco Battery Co., St. Mary's, Pa., has been incorporated with a capital of \$250,000 by Lyle G. Hall and others.

The Erie Railroad Co., 50 Church Street, New York, will build a one-story engine house at its yards at Sharon, Pa., to cost about \$130,000. It will also make extensions in its shops at Scranton.

The Combustion Engineering Corporation, 11 Broadway, New York, is planning the establishment of a department for shell manufacture at the works of the Cox Traveling Grate Co., Port Carbon, Pa., recently acquired. The new department will be in addition to its regular line of manufacture.

The Lycoming Edison Co., Lycoming, Pa., operating an electric light and power plant and system, is planning for improvements this year to cost about \$200,000.

The Uniontown Foundry Co., Uniontown, Pa., has been incorporated with a capital of \$10,000 to operate a local foundry. E. R. Floto, Uniontown, is the principal incorporator.

The Bethlehem Loading Co., Bethlehem, Pa., recently incorporated in Delaware, is planning for the establishment of a plant in South Bethlehem for the manufacture of shells. It is affiliated with the Bethlehem Steel Co. Eugene G. Grace is president.

The Johnson School, Richmond Hill, Scranton, Pa., has had plans prepared for a three-story school, 40 x 160 ft., to be equipped for manual training work. Fred Nelson, Connell Building, is the architect.

The E. G. Werner Sons Co., Mohnton, Pa., has filed articles of incorporation with a capital of \$50,000 to operate a box-making plant. Walter S. and John C. Werner, Mohnton, are the principal incorporators.

The Harrisburg Pipe & Pipe Bending Co., Harrisburg, Pa., has awarded a contract to the Autsin Co., Cleveland, O., for the erection of a new one-story plant building, 100 x 420 ft., to replace the section of its works recently destroyed by fire. It will cost about \$100,000, and will be used for the manufacture of shells. Construction is to be completed in about one month. W. T. Hildrup, Jr., is vice-president.

Owners of the Buchanan Foundry Co., Lebanon, Pa., have voted to sell the plant to new interests. The works are located at North Eighth Street and the Cornwall & Lebanon Railroad, producing iron and steel castings and specializing in the manufacture of sash weights.

Baltimore

BALTIMORE, Jan. 14.

Morton McI. Dukehart & Co., Inc., machinery broker, 100-102 West Fayette Street, Baltimore, has been incorporated with \$25,000 capital stock by Edward S. Denise, C. John Beeuwkes and Louis H. Windholz.

The Randall Metal Mfg. Co., 39 South Charles Street, Baltimore, metal worker and plater, has changed its name to the Metal Spinning & Plating Co.

The New York & Hagerstown Metal Stamping Co., Hagerstown, Md., has changed its name to the Maryland Pressed Steel Co.

Julien P. Friez & Sons, Baltimore Street and Central Avenue, Baltimore, manufacturer of fine meteorological instruments, will build a three-story addition, 39 x 47 ft.

The Pangborn Corporation, Hagerstown, Md., maker of sand-blast equipment, is taking bids for a foundry, 100 x 150 ft., and an extension to its machine shop, 60 x 100 ft., as well as a wood-working shop, 40 x 60 ft., all of steel and brick and metal sash. Victor F. Stine is assistant treasurer.

Fire Jan. 11 destroyed the wall paper works of the Jacob Thomas Co., Newark, Del., with loss estimated at \$200,000.

The plant of the American Propeller Works, Light and Poultny streets, Baltimore, Md., was damaged by fire Jan. 1, causing a loss of about \$100,000. It is said that the works will be immediately rebuilt.

The Empire Machinery & Hardware Corporation, Norfolk, Va., has increased its capital from \$100,000 to \$125,000.

The American Machine Mfg. Co., Charlotte, N. C., has increased its capital from \$200,000 to \$500,000.

William H. Garland, 404 Dock Street, Wilmington, N. C., president of the International Navigation Co., is planning the establishment of a shipbuilding plant near Southport, N. C. It is said that a site of 600 acres has been acquired on the Cape Fear River. It is also planned to construct shops to handle the shipyard work.

The Alliance Shipbuilding & Navigation Co., St. Marys, Ga., is planning an extension to its works and the installation of machinery to increase the capacity.

The Lockhart Power Co., Lockhart, S. C., is planning the construction of a new hydroelectric power plant. The company is a subsidiary of the Monarch Mills, Union, S. C. Emslie Nicholson is treasurer.

The Marine Iron Works, Norfolk, Va., has been incorporated with a capital of \$50,000 to manufacture iron and steel specialties for marine service. B. O. Colonna and W. B. Drewry, Norfolk, are the incorporators.

The American Shipbuilding Corporation, Alexandria, Va., recently incorporated with a capital of \$10,000,000 is planning for the establishment of a local shipbuilding plant. Colon H. Livingston is president and B. W. Morse, vice-president.

Chicago

CHICAGO, Jan. 14.

After an existence of nine years as a department of the Chicago Pneumatic Tool Co., the motor-truck interests of the company were taken over Jan. 1 by a new organization known as the Little Giant Truck Co.

From small beginnings it had grown to such proportions that a separate organization to handle it became necessary. This growth was particularly marked in 1917. Its factory at Chicago Heights has an amount of business on its books that will take months to complete, notwithstanding recently increased manufacturing facilities.

The officers of the new organization are those of the parent company: W. O. Duntley, president; W. B. Seelig, secretary; L. Beardsley, treasurer, with T. J. Hudson, sales manager. Headquarters will remain in the Little Giant Building, 1615 Michigan Avenue.

The address of the American Pneumatic Chuck Co., manufacturer of Olsen air-operated chucks, Chicago, mention of whose incorporation was recently made in THE IRON AGE, is 9 South Clinton Street, not 860 West Eighty-sixth Street, as has been stated.

A building permit has been granted to the Hughes Electric

Heating Co., Waller Avenue, Chicago, for the construction of a one-story plant, 87 x 250 ft., to cost \$30,000.

The William Glader Machine Works, 210 North Ann Street, Chicago, has commenced the erection of a three-story plant, 50 x 100 ft., on North Ann Street, to cost \$20,000.

The Wahl Adding Machine Co., Chicago, a Delaware corporation, has filed notice of change in name to the Wahl Co.

The Durbin Automatic Train Connector Co., East St. Louis, Ill., has commenced the construction of a two-story foundry on Bond Avenue, to cost \$25,000. Headquarters of the company are in the Pontiac Building, St. Louis, Mo.

Fire, Jan. 6, destroyed a portion of the works of the American Smelting & Refining Co., Omaha, Neb., with loss estimated at \$20,000.

The foundry of the Kausel Foundry Co., Dartmouth Street and Twenty-seventh Avenue, S. E., Minneapolis, was destroyed by fire Jan. 4 with loss of about \$6,000.

The Wagner Electric Mfg. Co., St. Louis, manufacturer of motors, is planning for the erection of a one-story plant, 130 x 500 ft., for the manufacture of ammunition. Contract has been awarded.

The St. Louis Malleable Casting Co., Conduit Avenue, St. Louis, is contemplating plans for a new plant to cost about \$500,000, which will comprise a machine shop, forge shop, foundry, electric power plant and other structures.

The Ben J. Sibbitt Iron Co., Wichita, Kan., has commenced the erection of a new one-story foundry, 40 x 60 ft., at First and Santa Fe streets, which will be operated in connection with the present works.

The Sprague Tire & Rubber Co., Twentieth Street, Omaha, Neb., is having plans prepared for the construction of a three-story plant for the manufacture of tires and mechanical rubber goods to cost about \$200,000.

Detroit

DETROIT, Jan. 14.

The machine-tool market continues exceedingly active. High-grade machines for munition work are especially in demand with delivery in from four to five months. The demand for second-hand machines has fallen off to a large degree, due to the fact that manufacturers want only the best machines for Government work.

It is estimated that Detroit manufacturers are making more than \$600,000,000 worth of war orders. Automobile factories of the city are devoting about one-third of their plants to the production of pleasure cars, one-third to the production of trucks and one-third to the making of munitions. The Ford Motor Co., the Packard Motor Co., the Cadillac Motor Car Co., and many of the other large companies have received large war orders requiring a considerable portion of their plants.

Several thousand skilled laborers are needed in Detroit for the 1918 industrial program. Experienced workers are required by the Lincoln Motor Co. for its new airplane engine plant; by Dodge Brothers for their ordnance factory; by the Detroit Shell Co. to fill its \$30,000,000 order from the Government, and by the Fisher Body Co., now turning out airplane bodies.

The Prudden Wheel Co., Lansing, Mich., and the Auto Wheel Co., Lansing, have received contracts from the Government aggregating \$3,000,000.

The Hayes Wheel Co., Jackson, Mich., and the Kelsey Wheel Co., Detroit, have received contracts from the Government for wheels.

The organization of a large company for manufacture of munitions has been perfected in Jackson, Mich., with Mayor William Starks at the head.

The Erd Motor Co., Saginaw, Mich., has increased its capitalization from \$150,000 to \$200,000 and will build an addition, 90 x 240 ft. Contracts for its kerosene-burning motor for tractors, amounting to nearly \$2,000,000, have been received for 1918 delivery.

The American Car & Foundry Co., Detroit, will build an addition for an artillery machine shop and assembling plant at a cost of \$30,000.

The Truman M. Smith Co., Grand Rapids, Mich., has been granted a charter to manufacture machinery and foundry equipment with a capital of \$60,000. The incorporators include C. N. Smith, I. T. Wright, and Gerald McCoy.

The Northern Transportation Co., Baltimore, is having plans prepared for a shipbuilding plant at Manistee, Mich. T. J. Donohue, 516 Muncie Building, Baltimore, Md., is secretary.

The American Machine Corporation, Port Huron, Mich.,

has been organized by E. G. Armstrong and F. J. Cheatham to manufacture machinery.

The Independent Stove Co., Detroit, has increased its capital stock from \$225,000 to \$350,000; the Detroit Range Boiler Co., Detroit, from \$120,000 to \$210,000, and Detroit Vapor Stove Co., Detroit, from \$150,000 to \$300,000.

The Electric Intake Heater Co., Jackson, Mich., has begun the manufacture of an electric heater for starting automobiles in cold weather.

The Hayes Motor Truck Wheel Co., St. Johns, Mich., has received an order for 1200 sets of wheels from the Government, with a still larger order to follow. J. D. Smith is secretary and general manager.

The Menominee Electrical Co., Menominee, Mich., manufacturer of electric fans and other devices, will move its plant to Cairo, Ill.

Cleveland

CLEVELAND, Jan. 14

The demand for machine tools for Government work shows no falling off. While no large inquiries have developed the past few days, a steady demand is noted for machines in lots up to 10, largely for fuse, detonators and truck work. It is expected that a great deal of additional machinery will be required by manufacturers having contracts for gun carriages. The Government is canvassing the trade to ascertain the conditions of shops in regard to their ability to make deliveries on various machine tools about April 1, apparently with the intention of rounding up machinery to supply the requirements of companies having Government contracts. Last week an inquiry for 165 turret lathes was noted. In addition, the Government is asking information as to deliveries on about 500 planers, 300 radial drills and other machinery. A local company is inquiring for 75 lathes for shell work, but has not yet been given a Government order.

The Urbana Mfg. Co., Urbana, Ohio, has been incorporated with a capital stock of \$50,000 by Henry Easron, Frank C. Gauner and others.

The Western Machine Products Co., Cleveland, has been incorporated with a capital stock of \$100,000 and will take over the plant of the Marvel Accessories Mfg. Co., East Seventy-third Street and St. Clair Avenue, and engage in Government work, having taken a contract for machining airplane motors. It has acquired some of the equipment of the Marvel Co., but will spend about \$125,000 in the purchase of automatic screw and large hand screw machines, boring, milling and heavy-duty drilling machines and forming presses. L. A. Katz, Williamson Building, is president. The Marvel Accessories Mfg. Co. will occupy the upper floor of the building for the manufacture of vulcanizers and other automobile accessories.

The Glauber Brass Mfg. Co., Cleveland, contemplates the erection of a new concrete seven-story plant, 150 x 300 ft. for the manufacture of plumbers' brass goods. It is the intention to have the brass foundry on the top floor, the pattern room on the sixth, the tool and finishing room on the fifth, and the packing and assembling on the fourth floors. The remaining floors and basement will be used for storage office and other purposes.

The Wind Brass & Aluminum Foundry Co., Cleveland has been incorporated with a capital stock of \$15,000 by L. F. Wind, R. L. H. Hyde and others.

The Minerva Engine Co., Cleveland, has been incorporated with a capital stock of \$200,000 by C. S. Goby and others.

It is announced that the Marion Steam Shovel Co., Marion, Ohio, has taken a Government contract for the manufacture of gun carriages amounting to about \$6,000,000.

The Collier Motor Truck Co., Bellevue, Ohio, will enlarge its plant by a brick and steel addition 50 x 150 ft.

The Hodes-Zink Mfg. Co., Fremont, Ohio, has been organized by A. G. Hodes and Howard E. Zink, and has established a plant for the manufacture of radiator covers, curtain lights and other automobile accessories.

The Pronovost Torsion-Spring Wheel Co., 828 Spitzer Building, Toledo, Ohio, has acquired a 60-acre site on which it contemplates building a plant for the manufacture of spring wheels for automobiles.

The Sandusky Foundry & Machine Co., Sandusky, Ohio, has acquired an adjoining site on which it plans to build an addition.

The Medina Machine Co., Medina, Ohio, contemplates enlarging its plant. It recently took a large order for machining flywheels for tractors.

Cincinnati

CINCINNATI, Jan. 14.

Recent cold weather has curtailed manufacturing operations to a considerable extent. The coal shortage also proved to be quite serious in a number of nearby manufacturing towns. Inquiries for machine tools are slowing down, but there is even yet in sight all the business that the tool makers can take care of. Demand for the larger sizes of boring mills and large lathes is still urgent.

Within the past few months quite a large number of new companies were incorporated to make tools and dies and to do general jobbing work. Most of these firms are located at Dayton. The new schedule naming a maximum price of \$2 on high-speed steel is calculated to effect a small saving in the production of machine tools.

The Fullno Pump Co., Cincinnati, has decided to remove its plant to Blanchester, Ohio, where a factory and a foundry will be constructed. Its sales offices will be located in the Mercantile Library Building, Cincinnati.

The Proctor & Gamble Co., Soapmaker, Cincinnati, has taken out a permit for the erection of a building estimated to cost \$85,000.

The Iron City Foundry Co., Hamilton, Ohio, has been incorporated with \$50,000 capital stock by Albert D. Stuckey, C. E. Freeman and others. It will take over and operate the former plant of the Miami Foundry Co. Some new equipment will be required.

It is rumored that the plant of the Sterling Paper Co., Hamilton, Ohio, will be removed next summer to a suburb of Dayton.

The Dayton Reliance Tool & Mfg. Co., Dayton, has increased its capital stock from \$20,000 to \$50,000, and will add equipment for increasing its present output. John J. Schneider is president.

The Topper Brothers Co., Columbus, recently incorporated with \$200,000 capital stock, will continue the scrap-iron business formerly operated under the name of Topper Brothers. It will also make a specialty of rebuilding railway equipment.

The Urbana Mfg. Co., Urbana, Ohio, has been incorporated with \$50,000 capital stock by H. H. Earsom and others. The new company, which is closely affiliated with the Urbana Furniture Co., will manufacture auto-truck bodies.

The Baltimore & Ohio Railroad Co., has completed plans for a roundhouse and repair shop for locomotives at Wellston, Ohio.

The Monarch Engineering Company, Dayton, Ohio, has been incorporated with \$150,000 capital stock to manufacture screw machine products. The company, which is headed by F. A. Wagner, is occupying a factory building at 230-240 East First Street.

The Crescent Tool Co., Cincinnati, has purchased a manufacturing building at Second and Elm streets that will enable it to more than double its present output of tools and dies. Charles Wasmer is president.

The Central South

LOUISVILLE, Jan. 14.

The Badger Aluminum Co., Louisville, has been organized to manufacture aluminum products. James H. Parker and Joseph A. Fleck head the company.

W. D. White, Tompkinsville, Ky., is doubling the capacity of his axe handle manufacturing plant.

The National Steel Products Co., Bessemer, Ala., has purchased a site for a new plant. It is proposed to commence immediate construction and have the works ready for operation within three months.

The Mobile & Ohio Railroad Co., Mobile, Ala., is planning for the installation of electrical machinery at its grain elevator. Improvements and extensions are estimated to cost about \$100,000.

A new hydroelectric power plant at Double Bridge Creek is being considered by the Geneva Power Co., Geneva, Ala. D. O. Vaughn is president.

The Louisville & Nashville Railroad Co., Louisville, is planning for the construction of a new machine shop and roundhouse on the site of its former engine house at Anniston, recently destroyed by fire.

The Ordnance Department, Washington, has acquired a site at Hadley's Bend, on the Cumberland River, near Nashville, Tenn., for the construction of a new powder manufacturing works. It will cost \$20,000,000, and is said will give initial employment to 15,000.

California

LOS ANGELES, Jan. 8.

The Los Angeles Can Co., 301 San Fernando Road, Los Angeles, has awarded a contract for a two-story brick addition, 56 x 110 ft. to cost \$13,000.

The United States Shipbuilding Co., San Diego, has secured a Government contract for the construction of four 8800 ton steel ships, at a cost of about \$1,000,000 each, complete. The company is rushing work on its new shipbuilding plant, which includes shipways, riveting and forge shops, foundry and other structures. Benjamin F. Graham, Los Angeles, is president, and R. T. Elliott, San Diego, vice-president.

The Arrowhead Reservoir & Power Co., San Bernardino, is considering the construction of a new hydroelectric power plant in Little Bear Valley, to have an initial capacity of 12,000 hp. and estimated to cost \$2,000,000.

The Master Carburetor Co., Los Angeles, has completed the establishment of its new plant and contemplates immediate operation. The production will be increased from an initial output of 35 carburetors per day to many times this amount. It recently secured the patent rights to manufacture Master carburetors. C. G. Harness is president.

The Los Angeles, San Pedro & Salt Lake Railroad, Los Angeles, is building additions to its local shops to cost about \$100,000, including a new pattern shop and structures for coach, engine and tank car repair work.

The Perfection Windshield Works, Los Angeles, has been organized to operate a plant at 1256 South Los Angeles Street. C. D. Keller, 1227 North Alexandria Avenue, heads the company.

The Ernest Mehring Co., Chicago, manufacturer of radiators, boilers and heating specialties, has opened an office in the Wilcox Building, Los Angeles. Forrest A. Sutphen is local manager.

The Hunter Foundry Co., Third Street, Berkeley, manufacturer of radiators, and parts for motor trucks, contemplates the removal of its plant to Oakland and is negotiating for a suitable site. The company is a subsidiary of the Fageol Motor Co., Oakland.

The Pacific Northwest

SEATTLE, WASH., Jan. 8.

Extensions and improvements to shipbuilding plants in this section have been made or are under way, and plans are being formulated to bring production to its maximum capacity. All industries have been greatly handicapped by the extreme congestion in freight and shipping. Materials have been very slow in arriving; and many plants have been retarded in construction.

The majority of machine shops and manufacturing plants are operating to capacity, employing three 8-hr. shifts.

Government contracts have been awarded to Northwest Steel Co., and the Columbia River Shipbuilding Corporation, Portland, Ore., for 20 8800-ton steel vessels, costing \$40,000,000, to be completed this year.

The Puget Sound Machinery Depot, Seattle, has completed plans for its proposed boiler shop. It will be one-story, 180 x 269 ft. and cost \$75,000.

The Grays Harbor Motor Shipbuilding Co., Aberdeen, Wash., plans the construction of a machine shop for installing engines in Government vessels it is building. The new shop will employ 400 men.

The McAteer Shipbuilding Co., Seattle, is enlarging its plant and installing about \$40,000 worth of equipment to handle new contracts.

The Motorship Construction Co., Vancouver, Wash., will make improvements and enlargements to its plant. It recently received Government contracts for a number of ships.

The G. M. Standifer Shipbuilding Co., Portland, is completing plans for its new steel plant to cost \$1,000,000. It has received contracts for 10 steel steamers for the Government.

Canada

TORONTO, Jan. 14.

The Hamilton Bridge Works Co., Hamilton, Ont., will build a one-story addition at a cost of \$20,000. W. B. Champ is secretary.

Major Moore, North West Trust Building, Vancouver, B. C., is interested in a company which proposes to erect a yard at Vancouver for building steel ships.

John Bertram & Sons Co., Dundas, Ont., has let contract to P. H. Secord & Sons, Brantford, Ont., for the erection of a brick and steel addition, 70 x 300 ft., to their plant to cost \$150,000, on the site of its old pattern shop. It will be used as a shell plant.

Frank Ludham, of the Jut Nickel Co., 43 Exchange Place, New York, is in the market for 10 rocker dump cars, Arthur Koppel type, 30 cu. ft. capacity, 36-in. gage, with manganese steel wheels. Plans and particulars are available at the company's New York office.

Jules Caron, architect, 69 St. Francis Xavier Street, Three Rivers, Que., is in the market for a 35-ton crane or hoisting machine.

The Cross Fertilizer Co., Ltd., Prince Street, Sydney, N. S., whose mill and engine room was recently destroyed by fire, will rebuild at once at a cost of \$20,000.

The Gillette Safety Razor Co. of Canada, Montreal, has decided to enlarge its plant to five times present capacity. The addition will cost about \$750,000 and \$180,000 worth of new machinery will be installed. When completed and equipment is installed, the plant will have a capacity of 800 razors and 10,000 dozen blades per day.

Joseph Knox, Stayner, Ont., is in the market for one 30-hp., and one 3-hp., 220-volt, 60-cycle, three-phase, alternating current motors.

The plant of the Winnipeg Brass & Fittings Co., Winnipeg, was damaged by fire Jan. 8, with a loss of \$13,000.

The cooperage shop of the Steel Company of Canada, Hamilton, Ont., was damaged by fire Jan. 7, with a loss of \$12,000. It will be rebuilt immediately.

The plant of the Peterboro Canoe Co., Peterboro, Ont., which was for some time past given over to the manufacture of shell boxes, has been destroyed by fire. It was stocked with material and machinery used in this line of work in addition to its regular equipment, which will be a total loss, estimated at \$60,000. The plant will be rebuilt.

The plant of the Watson Mfg. Co., Brantford, Ont., was damaged by fire Jan. 8, and the machinery was further injured by water. The loss will amount to about \$30,000. Some new equipment will be required.

The Chesley Chair Co., Ltd., Chesley, Ont., is in the market for a number of 220-volt, 60-cycle electric motors of from 5 to 30 hp.

The John V. Gray Construction Co. has been awarded the general contract for a boiler house to be erected for the Swift Canadian Co., Toronto.

The Alberta Electro-Chemical Co., Ltd., will install machinery in its plant at Kananaskis Falls, Alberta, for the manufacture of carbide, etc. Dr. Harry Brett, Banff, Alberta, is in charge.

J. C. Nichols, mine superintendent, Canadian Copper Co., Copper Cliff, Ont., is in the market for an electric pump, 150 gal. per min. capacity, mine pump head of 1100 ft., discharge 6 in.; also a 100 hp., alternating current, 550-volt, direct driven motor.

W. Waterbury, purchasing agent, Canadian Copper Co., Copper Cliff, Ont., is in the market for large steel castings, suitable for Pollock slag cars.

J. & T. Bell, Ltd., Montreal, has been incorporated with a capital stock of \$300,000 by Herbert M. Marler, Lawrence Macfarlane, William B. Scott and others, to manufacture leather goods.

The Canada Needle Works, Ltd., Georgetown, Ont., has been incorporated with a capital stock of \$50,000 by Frederick A. Harley, Richard I. Creelman, both of Georgetown, Ont., and others, to manufacture needles, etc.

The Maritime Wrecking & Salvage Co., Ltd., Montreal, has been incorporated with a capital stock of \$1,000,000, by William G. Pugsley, Ronald C. Grant, Waldo W. Skinner and others.

The Dominion Metallurgical Co., Ltd., Toronto, has been incorporated with a capital stock of \$250,000 by Howard A. Harrison, 2 Wilton Crescent; Samuel D. Gardiner, John F. Van-Lane and others to manufacture iron, steel, silicon, molybdenum and other metals.

The Colborne Trading & Transportation Co., Ltd., Montreal, has been incorporated with a capital stock of \$2,000,000 by F. S. Isard, Frederick H. Markey, Waldo W. Skinner and others to build and operate ships, elevators, etc.

The St. Lawrence Shipbuilding & Steel Co., Ltd., Sorel, Que., has been incorporated with a capital stock of \$1,000,000 by Peter Bercovitch, Ernest Lafontaine, Nathan Gordon and others of Montreal.

The Structural Steel Co., Ltd., Montreal, has been incorporated with a capital stock of \$5,000 by Walter R. L. Shanks, Francis G. Bush, George R. Drennan and others.

The Pyrene Mfg. Co., of Canada, Ltd., Montreal, has been incorporated with a capital stock of \$100,000 by James A. Miller, Aubrey H. Elder, Maurice C. Lalonde and others to manufacture fire extinguishers, etc.

The Modern Paper Box Co., Ltd., Guelph, Ont., has been incorporated with a capital stock of \$100,000 by John P. Hale, Wilfred L. Clark, William R. MacKenzie and others.

Government Purchases

WASHINGTON, Jan. 14.

Bids will be received by the Bureau of Supplies and Accounts, Navy Department, Washington, opening date unassigned, schedule 1651, for one motor-driven grinding machine, drill grinder and tool grinder for South Charleston; schedule 1653, for 30 motor-generator sets for Brooklyn, Boston, Philadelphia and Norfolk; schedule, 2669½, for one gantry crane for Puget Sound, opening date Jan. 25.

NEW TRADE PUBLICATIONS

Motor-Driven Condensation Pumps.—Yeomans Brothers Co., 231 Institute Place, Chicago. Bulletin No. C-5000. Illustrations and descriptive matter explain the operation of a line of motor-driven pumps for automatically returning the water of condensation from low-pressure steam heating systems to the boiler. Dimension diagrams and tables of the standard sizes are included.

Motor Truck Axle.—Wagner Axle Co., Anderson, Ind. Circular. Concerned with a new worm drive motor truck axle equipped with a special type of internal expansion brake. The description, of the construction of the various parts of the axle is supplemented by a number of drawings.

Gravity Conveyors.—Lamson Co., 100 Boylston St., Boston. Folder. Mentions a line of gravity conveying systems for handling barrels, boxes, baskets, etc. The conveyors consist of steel rollers that are made in straight and curved sections of different lengths. A number of views of the equipment in use are included.

Turret Lathes.—Gisholt Machine Co., Madison, Wis. Pamphlet. Gives a brief pictorial history of the development of air craft from the balloons of the earlier days to the modern war machines. The part played by the company's turret lathes in the manufacture of some of the parts is touched upon.

Air Compressors.—Nagle Corliss Engine Works, Erie, Pa. Bulletin No. 30. Refers to a line of duplex direct-connected motor-driven air compressors. A detailed description of the construction of the compressors is presented with illustrations of the different parts. Exterior and section views of the compressor are also shown.

Oil Burners.—Foundry Equipment Co., 1831 Columbus Road, Cleveland. Folder. Calls attention to an oil burner for which the advantages of thorough atomization of the oil, freedom from clogging and complete control are claimed. Its features are briefly but thoroughly brought out, the text being supplemented by a section of the burner. Mention is made of the various other lines of foundry equipment that can be supplied and a partial list of users of the burner is included.

Automatic Pumps and Receivers.—Worthington Pump & Machinery Corporation, 115 Broadway, New York. Bulletin D-1301-25. Gives general description and specifications for a line of automatic pumps for handling water of condensation in heating systems and machinery using steam. The pumps covered include single, duplex and triplex types with steam or electric motor drive. A number of different arrangements of pumps and receivers are illustrated with brief descriptions and tables of the different sizes that are built.

Tool Grinding Machine.—Noble & Westbrook Mfg. Co., Hartford, Conn. Circular No. 403. Relates to a heavy duty wet tool grinding machine of the floor type which was illustrated in THE IRON AGE, May 31, 1917. Among the distinctive features of design which are emphasized are the elimination of a pan, valves and pump in the water supply system and the use of cast-iron bearings with arrangements for taking up wear. An illustration and a condensed table of specifications of the two sizes of the machine which are built are included.

Bearings and Bushings.—Aluminum Castings Co., Cleveland. Mailing card. Deals with a form of bearing metal alloy which can be supplied in bars ranging from 1 to 5 in. in external diameter and varying diameters of cores. This material, it is emphasized, is adapted for high speeds and heavy duty and a table giving the various sizes of bars that can be supplied in the standard 12-in. length is given.